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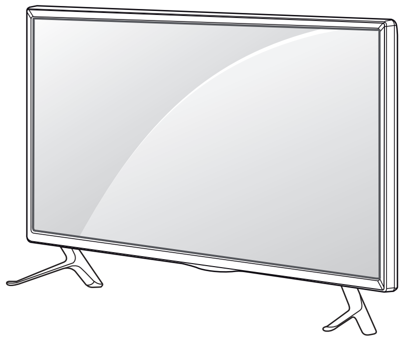
LED TV
SERVICE MANUAL

CHASSIS : LD42B

MODEL : 32LB65** 32LB65**-Z*

CAUTION
BEFORE SERVICING THE CHASSIS,
READ THE SAFETY PRECAUTIONS IN THIS MANUAL.



P/NO : MFL67985203 (1401-REV00) Printed in Korea

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SAFETY PRECAUTIONS

IMPORTANT SAFETY NOTICE

Many electrical and mechanical parts in this chassis have special safety-related characteristics. These parts are identified by ⚠ in the Schematic Diagram and Exploded View.
It is essential that these special safety parts should be replaced with the same components as recommended in this manual to prevent Shock, Fire, or other Hazards.
Do not modify the original design without permission of manufacturer.

General Guidance

An **isolation Transformer should always be used** during the servicing of a receiver whose chassis is not isolated from the AC power line. Use a transformer of adequate power rating as this protects the technician from accidents resulting in personal injury from electrical shocks.

It will also protect the receiver and it's components from being damaged by accidental shorts of the circuitry that may be inadvertently introduced during the service operation.

If any fuse (or Fusible Resistor) in this TV receiver is blown, replace it with the specified.

When replacing a high wattage resistor (Oxide Metal Film Resistor, over 1 W), keep the resistor 10 mm away from PCB.

Keep wires away from high voltage or high temperature parts.

Before returning the receiver to the customer,

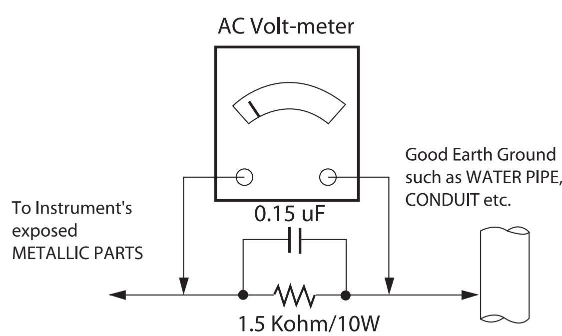
always perform an **AC leakage current check** on the exposed metallic parts of the cabinet, such as antennas, terminals, etc., to be sure the set is safe to operate without damage of electrical shock.

Leakage Current Cold Check(Antenna Cold Check)
With the instrument AC plug removed from AC source, connect an electrical jumper across the two AC plug prongs. Place the AC switch in the on position, connect one lead of ohm-meter to the AC plug prongs tied together and touch other ohm-meter lead in turn to each exposed metallic parts such as antenna terminals, phone jacks, etc.
If the exposed metallic part has a return path to the chassis, the measured resistance should be between 1 MΩ and 5.2 MΩ.
When the exposed metal has no return path to the chassis the reading must be infinite.
An other abnormality exists that must be corrected before the receiver is returned to the customer.

Leakage Current Hot Check (See below Figure)
Plug the AC cord directly into the AC outlet.

Do not use a line Isolation Transformer during this check.
Connect 1.5 K / 10 watt resistor in parallel with a 0.15 uF capacitor between a known good earth ground (Water Pipe, Conduit, etc.) and the exposed metallic parts.
Measure the AC voltage across the resistor using AC voltmeter with 1000 ohms/volt or more sensitivity.
Reverse plug the AC cord into the AC outlet and repeat AC voltage measurements for each exposed metallic part. Any voltage measured must not exceed 0.75 volt RMS which is corresponds to 0.5 mA.
In case any measurement is out of the limits specified, there is possibility of shock hazard and the set must be checked and repaired before it is returned to the customer.

Leakage Current Hot Check circuit



When 25A is impressed between Earth and 2nd Ground for 1 second, Resistance must be less than 0.1 Ω
*Base on Adjustment standard

SERVICING PRECAUTIONS

CAUTION: Before servicing receivers covered by this service manual and its supplements and addenda, read and follow the *SAFETY PRECAUTIONS* on page 3 of this publication.
NOTE: If unforeseen circumstances create conflict between the following servicing precautions and any of the safety precautions on page 3 of this publication, always follow the safety precautions. Remember: Safety First.

General Servicing Precautions

1. Always unplug the receiver AC power cord from the AC power source before;
   a. Removing or reinstalling any component, circuit board module or any other receiver assembly.
   b. Disconnecting or reconnecting any receiver electrical plug or other electrical connection.
   c. Connecting a test substitute in parallel with an electrolytic capacitor in the receiver.
   CAUTION: A wrong part substitution or incorrect polarity installation of electrolytic capacitors may result in an explosion hazard.
2. Test high voltage only by measuring it with an appropriate high voltage meter or other voltage measuring device (DVM, FETVOM, etc) equipped with a suitable high voltage probe.
   Do not test high voltage by "drawing an arc".
3. Do not spray chemicals on or near this receiver or any of its assemblies.
4. Unless specified otherwise in this service manual, clean electrical contacts only by applying the following mixture to the contacts with a pipe cleaner, cotton-tipped stick or comparable non-abrasive applicator; 10 % (by volume) Acetone and 90 % (by volume) isopropyl alcohol (90 % - 99 % strength)
   CAUTION: This is a flammable mixture.
   Unless specified otherwise in this service manual, lubrication of contacts in not required.
5. Do not defeat any plug/socket B+ voltage interlocks with which receivers covered by this service manual might be equipped.
6. Do not apply AC power to this instrument and/or any of its electrical assemblies unless all solid-state device heat sinks are correctly installed.
7. Always connect the test receiver ground lead to the receiver chassis ground before connecting the test receiver positive lead.
   Always remove the test receiver ground lead last.
8. Use with this receiver only the test fixtures specified in this service manual.
   CAUTION: Do not connect the test fixture ground strap to any heat sink in this receiver.

Electrostatically Sensitive (ES) Devices

Some semiconductor (solid-state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically Sensitive (ES) Devices. Examples of typical ES devices are integrated circuits and some field-effect transistors and semiconductor "chip" components. The following techniques should be used to help reduce the incidence of component damage caused by static by static electricity.

1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any electrostatic charge on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging wrist strap device, which should be removed to prevent potential shock reasons prior to applying power to the unit under test.
2. After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the assembly.
3. Use only a grounded-tip soldering iron to solder or unsolder ES devices.
4. Use only an anti-static type solder removal device. Some solder removal devices not classified as "anti-static" can generate electrical charges sufficient to damage ES devices.
5. Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ES devices.
6. Do not remove a replacement ES device from its protective package until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, aluminum foil or comparable conductive material).
7. Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.
   CAUTION: Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.
8. Minimize bodily motions when handling unpackaged replacement ES devices. (Otherwise harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity sufficient to damage an ES device.)

General Soldering Guidelines

1. Use a grounded-tip, low-wattage soldering iron and appropriate tip size and shape that will maintain tip temperature within the range or 500 °F to 600 °F.
2. Use an appropriate gauge of RMA resin-core solder composed of 60 parts tin/40 parts lead.
3. Keep the soldering iron tip clean and well tinned.
4. Thoroughly clean the surfaces to be soldered. Use a mall wire-bristle (0.5 inch, or 1.25 cm) brush with a metal handle.
   Do not use freon-propelled spray-on cleaners.
5. Use the following unsoldering technique
   a. Allow the soldering iron tip to reach normal temperature. (500 °F to 600 °F)
   b. Heat the component lead until the solder melts.
   c. Quickly draw the melted solder with an anti-static, suction-type solder removal device or with solder braid.
   CAUTION: Work quickly to avoid overheating the circuit board printed foil.
6. Use the following soldering technique.
   a. Allow the soldering iron tip to reach a normal temperature (500 °F to 600 °F)
   b. First, hold the soldering iron tip and solder the strand against the component lead until the solder melts.
   c. Quickly move the soldering iron tip to the junction of the component lead and the printed circuit foil, and hold it there only until the solder flows onto and around both the component lead and the foil.
   CAUTION: Work quickly to avoid overheating the circuit board printed foil.
   d. Closely inspect the solder area and remove any excess or splashed solder with a small wire-bristle brush.

IC Remove/Replacement
Some chassis circuit boards have slotted holes (oblong) through which the IC leads are inserted and then bent flat against the circuit foil. When holes are the slotted type, the following technique should be used to remove and replace the IC. When working with boards using the familiar round hole, use the standard technique as outlined in paragraphs 5 and 6 above.

Removal
1. Desolder and straighten each IC lead in one operation by gently prying up on the lead with the soldering iron tip as the solder melts.
2. Draw away the melted solder with an anti-static suction-type solder removal device (or with solder braid) before removing the IC.

Replacement
1. Carefully insert the replacement IC in the circuit board.
2. Carefully bend each IC lead against the circuit foil pad and solder it.
3. Clean the soldered areas with a small wire-bristle brush. (It is not necessary to reapply acrylic coating to the areas).

"Small-Signal" Discrete Transistor Removal/Replacement
1. Remove the defective transistor by clipping its leads as close as possible to the component body.
2. Bend into a "U" shape the end of each of three leads remaining on the circuit board.
3. Bend into a "U" shape the replacement transistor leads.
4. Connect the replacement transistor leads to the corresponding leads extending from the circuit board and crimp the "U" with long nose pliers to insure metal to metal contact then solder each connection.

Power Output, Transistor Device
Removal/Replacement
1. Heat and remove all solder from around the transistor leads.
2. Remove the heat sink mounting screw (if so equipped).
3. Carefully remove the transistor from the heat sink of the circuit board.
4. Insert new transistor in the circuit board.
5. Solder each transistor lead, and clip off excess lead.
6. Replace heat sink.

Diode Removal/Replacement
1. Remove defective diode by clipping its leads as close as possible to diode body.
2. Bend the two remaining leads perpendicular y to the circuit board.
3. Observing diode polarity, wrap each lead of the new diode around the corresponding lead on the circuit board.
4. Securely crimp each connection and solder it.
5. Inspect (on the circuit board copper side) the solder joints of the two "original" leads. If they are not shiny, reheat them and if necessary, apply additional solder.

Fuse and Conventional Resistor
Removal/Replacement
1. Clip each fuse or resistor lead at top of the circuit board hollow stake.
2. Securely crimp the leads of replacement component around notch at stake top.
3. Solder the connections.
   CAUTION: Maintain original spacing between the replaced component and adjacent components and the circuit board to prevent excessive component temperatures.

Circuit Board Foil Repair
Excessive heat applied to the copper foil of any printed circuit board will weaken the adhesive that bonds the foil to the circuit board causing the foil to separate from or "lift-off" the board. The following guidelines and procedures should be followed whenever this condition is encountered.

At IC Connections
To repair a defective copper pattern at IC connections use the following procedure to install a jumper wire on the copper pattern side of the circuit board. (Use this technique only on IC connections).

1. Carefully remove the damaged copper pattern with a sharp knife. (Remove only as much copper as absolutely necessary).
2. carefully scratch away the solder resist and acrylic coating (if used) from the end of the remaining copper pattern.
3. Bend a small "U" in one end of a small gauge jumper wire and carefully crimp it around the IC pin. Solder the IC connection.
4. Route the jumper wire along the path of the out-away copper pattern and let it overlap the previously scraped end of the good copper pattern. Solder the overlapped area and clip off any excess jumper wire.

At Other Connections
Use the following technique to repair the defective copper pattern at connections other than IC Pins. This technique involves the installation of a jumper wire on the component side of the circuit board.

1. Remove the defective copper pattern with a sharp knife. Remove at least 1/4 inch of copper, to ensure that a hazardous condition will not exist if the jumper wire opens.
2. Trace along the copper pattern from both sides of the pattern break and locate the nearest component that is directly connected to the affected copper pattern.
3. Connect insulated 20-gauge jumper wire from the lead of the nearest component on one side of the pattern break to the lead of the nearest component on the other side.
   Carefully crimp and solder the connections.
   CAUTION: Be sure the insulated jumper wire is dressed so the it does not touch components or sharp edges.

SPECIFICATION

NOTE : Specifications and others are subject to change without notice for improvement.

1. Application range

This specification is applied to the LED TV used LD42B chassis.

2. Requirement for Test

Each part is tested as below without special appointment.

(1) Temperature: 25 °C ± 5 °C(77 °F ± 9 °F), CST: 40 °C ± 5 °C
(2) Relative Humidity: 65 % ± 10 %
(3) Power Voltage
: Standard input voltage (AC 100-240 V~, 50/60 Hz)
* Standard Voltage of each products is marked by models.
(4) Specification and performance of each parts are followed each drawing and specification by part number in accordance with BOM.
(5) The receiver must be operated for about 20 minutes prior to the adjustment.

3. Test method

(1) Performance: LGE TV test method followed
(2) Demanded other specification
- Safety : CE, IEC specification
- EMC : CE, IEC

4. Model General Specification

No.	Item	Specification	Remarks
1	Market	EU(PAL Market-37Countries)	**DTV & Analog (Total 37 countries)** **DTV (MPEG2/4, DVB-T) : 29 countries** Germany, Netherland, Switzerland, Hungary, Austria, Slovenia, Bulgaria, France, Spain, Italy, Belgium, Luxemburg, Greece, Czech, Croatia, Turkey, Moroco, Ireland, Latvia, Estonia, Lithuania, Poland, Portugal, Romania, Albania, Bosnia, Serbia, Slovakia, Beralus **DTV (MPEG2/4, DVB-T2): 8 countries** UK(Ireland), Sweden, Denmark, Finland, Norway, Ukraine, Kazakhstan, Russia **DTV (MPEG2/4, DVB-C): 37 countries** Germany, Netherland, Switzerland, Hungary, Austria, Slovenia, Bulgaria, France, Spain, Italy, Belgium, Russia, Luxemburg, Greece, Czech, Croatia, Turkey, Moroco, Ireland, Latvia, Estonia, Lithuania, Poland, Portugal, Romania, Albania, Bosnia, Serbia, Slovakia, Beralus, UK, Sweden, Denmark, Finland, Norway, Ukraine, Kazakhstan **DTV (MPEG2/4,DVB-S): 30 countries** Germany, Netherland, Switzerland, Hungary, Austria, Slovenia, Bulgaria, France, Spain, Italy, Belgium, Russia, Luxemburg, Greece, Czech, Croatia, Turkey, Moroco, Ireland, Latvia, Estonia, Lithuania, Poland, Portugal, Romania, Albania, Bosnia, Serbia, Slovakia, Beralus **Supported satellite : 22 satellites** HISPASAT 1C/1D, ATLANTIC BIRD 2, NILESAT 101/102, ATLANTIC BIRD 3, AMOS 2/3, THOR 5/6, IRIUS 4, EUTELSAT-W3A, EUROBIRD 9A, EUTELSAT-W2A, HOTBIRD 6/8/9, EUTELSAT-SESAT, ASTRA 1L/H/M/KR, ASTRA 3A/3B, BADR 4/6, ASTRA 2D, EUROBIRD 3, EUTELSAT-W7, HELLASSAT 2, EXPRESS AM1, TURKSAT 2A/3A, INTERSAT10

No.	Item	Specification	Remarks
2	Television system	1) Digital TV - DVB-T/T2 - DVB-C - DVB-S/S2 2) Analogue TV - PAL/SECAM B/G/I/D/K - SECAM L/L'	
3	Program coverage	1) Digital TV - VHF, UHF - C-Band, Ku-Band 2) Analogue TV - VHF : E2 to E12 - UHF : E21 to E69 - CATV : S1 to S20 - HYPER : S21 to S47	
4	Receiving system	Analog : Upper Heterodyne Digital : COFDM, QAM	► DVB-T - Guard Interval(Bitrate_Mbit/s) 1/4, 1/8, 1/16, 1/32 - Modulation : Code Rate QPSK : 1/2, 2/3, 3/4, 5/6, 7/8 16-QAM : 1/2, 2/3, 3/4, 5/6, 7/8 64-QAM : 1/2, 2/3, 3/4, 5/6, 7/8 ► DVB-T2 (Model : *L*V*-Z* (T2 only Model)) - Guard Interval(Bitrate_Mbit/s) 1/4, 1/8, 1/16, 1/32, 1/128, 19/128, 19/256, - Modulation : Code Rate QPSK : 1/2, 2/5, 2/3, 3/4, 5/6 16-QAM : 1/2, 2/5, 2/3, 3/4, 5/6 64-QAM : 1/2, 2/5, 2/3, 3/4, 5/6 256-QAM : 1/2, 2/5, 2/3, 3/4, 5/6 ► DVB-C - Symbolrate : 4.0Msymbols/s to 7.2Msymbols/s - Modulation : 16QAM, 64-QAM, 128-QAM and 256-QAM ► DVB-S/S2 - symbolrate DVB-S2 (8PSK / QPSK) : 2 ~ 45Msymbol/s DVB-S (QPSK) : 2 ~ 45Msymbol/s - viterbi DVB-S mode : 1/2, 2/3, 3/4, 5/6, 7/8 DVB-S2 mode : 1/2, 2/3, 3/4, 3/5, 4/5, 5/6, 8/9, 9/10
5	Scart (1EA)	PAL, SECAM	Scart 1 Jack is Full scart and support ATV/DTV-OUT (not support DTV Auto AV)
6	Video Input RCA(1EA)	PAL, SECAM, NTSC4.43	4 System : PAL, SECAM, NTSC4.43, PAL60 Hybrid Type
7	Head phone out	Antenna, AV1, AV2, Component, HDMI1, HDMI2, HDMI3, USB1, USB2, USB3	
8	Component Input (1EA)	Y/Cb/Cr Y/Pb/Pr	Hybrid Type
9	HDMI Input (3EA)	HDMI1-DTV HDMI2-DTV HDMI3-DTV	HDMI1: PC support(HDMI version 1.3) Support HDCP
10	Audio Input (3EA)	DVI Audio Component/AV2 AV1	L/R Input.
11	SDPIF out (1EA)	SPDIF out	
12	USB (1EA)	EMF, DivX HD, For SVC (download)	JPEG, MP3, DivX HD
13	Ethernet Connect(1EA)	Ethernet Connect	
14	PCMCIA Card slot (1EA)	PCMCIA slot	

5. Component Video Input (Y, PB, PR)

No.	Specification			
	Resolution	H-freq(kHz)	V-freq(Hz)	Pixel clock
1.	720×480	15.73	60.00	SDTV, DVD 480i
2.	720×480	15.63	59.94	SDTV, DVD 480i
3.	720×480	31.47	59.94	480p
4.	720×480	31.50	60.00	480p
5.	720×576	15.625	50.00	SDTV, DVD 625 Line
6.	720×576	31.25	50.00	HDTV 576p
7.	1280×720	45.00	50.00	HDTV 720p
8.	1280×720	44.96	59.94	HDTV 720p
9.	1280×720	45.00	60.00	HDTV 720p
10.	1920×1080	31.25	50.00	HDTV 1080i
11.	1920×1080	33.75	60.00	HDTV 1080i
12.	1920×1080	33.72	59.94	HDTV 1080i
13.	1920×1080	56.250	50	HDTV 1080p
14.	1920×1080	67.5	60	HDTV 1080p

6. HDMI Input
6.1. DTV mode

No.	Resolution	H-freq(kHz)	V-freq.(Hz)	Pixel clock(MHz)
1.	640*480	31.469 / 31.5	59.94/60	SDTV 480P
2.	720*480	31.469 / 31.5	59.94 / 60	SDTV 480P
3.	720*576	31.25	50	SDTV 576P
4.	720*576	15.625	50	SDTV 576I
5.	1280*720	37.500	50	HDTV 720P
6.	1280*720	44.96 / 45	59.94 / 60	HDTV 720P
7.	1920*1080	33.72 / 33.75	59.94 / 60	HDTV 1080I
8.	1920*1080	28.125	50.00	HDTV 1080I
9.	1920*1080	26.97 / 27	23.97 / 24	HDTV 1080P
10.	1920*1080	28.125	25	HDTV 1080P
11.	1920*1080	33.716 / 33.75	29.976 / 30.00	HDTV 1080P
12.	1920*1080	56.250	50	HDTV 1080P
13.	1920*1080	67.43 / 67.5	59.94 / 60	HDTV 1080P

6.2. PC mode

No.	Resolution	H-freq(kHz)	V-freq.(Hz)	Pixel clock(MHz)
1	640 x 350 @70Hz	31.468	70.09	EGA
2	720 x 400 @70Hz	31.469	70.08	DOS
3	640 x 480 @60Hz	31.469	59.94	VESA(VGA)
4	800 x 600 @60Hz	37.879	60.31	VESA(SVGA)
5	1024 x 768 @60Hz	48.363	60.00	VESA(XGA)
6	1152 x 864 @60Hz	54.348	60.053	VESA
7	1280 x 1024 @60Hz	63.981	60.020	VESA(SXGA)
8	1360 x 768 @60Hz	47.712	60.015	VESA(WXGA)
9	1920 x 1080 @60Hz	67.5	60.00	WUXGA(Reduced Blanking)

7. 3D Mode

7.1. HDMI 1.4b (3D supported mode automatically)

No.	Resolution	H-freq(kHz)	V-freq.(Hz)	Pixel clock(MHz)	VIC	3D input proposed mode	Proposed
1	640*480	31.469 / 31.5	59.94/ 60	25.125	1	Top-and-Bottom Side-by-side(half)	Secondary(SDTV 480P) Secondary(SDTV 480P)
2		62.938/63	59.94/ 60	50.35/50.4	1	Frame packing Line alternative	Secondary(SDTV 480P) (SDTV 480P)
3		31.469 / 31.5	59.94/ 60	50.35/50.4	1	Side-by-side(Full)	(SDTV 480P)
4	720*480	31.469 / 31.5	59.94 / 60	27.00/27.03	2,3	Top-and-Bottom Side-by-side(half)	Secondary(SDTV 480P) Secondary(SDTV 480P)
5		62.938/63	59.94 / 60	54/54.06	2,3	Frame packing Line alternative	Secondary(SDTV 480P) (SDTV 480P)
6		31.469 / 31.5	59.94 / 60	54/54.06	2,3	Side-by-side(Full)	(SDTV 480P)
7	720*576	31.25	50	27	17,18	Top-and-Bottom Side-by-side(half)	Secondary(SDTV 576P) Secondary(SDTV 576P)
8		62.5	50	54	17,18	Frame packing Line alternative	Secondary(SDTV 576P) (SDTV 576P)
9		31.25	50	54	17,18	Side-by-side(Full)	(SDTV 576P)
10	1280*720	37.5	50	74.25	19	Top-and-Bottom Side-by-side(half)	Primary(HDTV 720P) Primary(HDTV 720P)
11		75	50	148.5	19	Frame packing Line alternative	Primary(HDTV 720P) (HDTV 720P)
12		37.500	50	148.5	19	Side-by-side(Full)	(HDTV 720P)
13		44.96 / 45	59.94 / 60	74.18/74.25	4	Top-and-Bottom Side-by-side(half)	Primary(HDTV 720P) Primary(HDTV 720P)
14		89.91/90	59.94 / 60	148.35/148.5	4	Frame packing Line alternative	Primary(HDTV 720P) (HDTV 720P)
15		44.96 / 45	59.94 / 60	148.35/148.5	4	Side-by-side(Full)	(HDTV 720P)
16	1920*1080	33.72 / 33.75	59.94 / 60	74.18/74.25	5	Top-and-Bottom Side-by-side(half)	Secondary(HDTV 1080I) Primary(HDTV 1080I)
17		67.432 / 67.50	59.94 / 60	148.35/148.5	5	Frame packing Field alternative	Primary(HDTV 1080I) (HDTV 1080I)
18		33.72 / 33.75	59.94 / 60	148.35/148.5	5	Side-by-side(Full)	(HDTV 1080I)
19		28.125	50.00	74.25	20	Top-and-Bottom Side-by-side(half)	Secondary(HDTV 1080I) Primary(HDTV 1080I)
20		56.25	50.00	148.5	20	Frame packing Field alternative	Primary(HDTV 1080I) (HDTV 1080I)
21		28.125	50.00	148.5	20	Side-by-side(Full)	(HDTV 1080I)
22		26.97 / 27	23.97 / 24	74.18/74.25	32	Top-and-Bottom Side-by-side(half)	Primary(HDTV 1080P) Primary(HDTV 1080P)
23		43.94/54	23.97 / 24	148.35/148.5	32	Frame packing Line alternative	Primary(HDTV 1080P) (HDTV 1080P)
24		26.97 / 27	23.97 / 24	148.35/148.5	32	Side-by-side(Full)	(HDTV 1080P)
25		28.125	25	74.25	33	Top-and-Bottom Side-by-side(half)	Secondary(HDTV 1080P) Secondary(HDTV 1080P)
26		56.24	25	148.5	33	Frame packing Line alternative	Secondary(HDTV 1080P) (HDTV 1080P)
27		28.12	25	148.5	33	Side-by-side(Full)	(HDTV 1080P)
28		33.716 / 33.75	29.976 / 30.00	74.18/74.25	34	Top-and-Bottom Side-by-side(half)	Primary(HDTV 1080P) Secondary(HDTV 1080P)
29		67.432 / 67.5	29.976 / 30.00	148.35/148.5	34	Frame packing Line alternative	Primary(HDTV 1080P) (HDTV 1080P)
30		33.716 / 33.75	29.976 / 30.00	148.35/148.5	34	Side-by-side(Full)	(HDTV 1080P)
31		56.250	50	148.5	31	Top-and-Bottom Side-by-side(half)	Primary(HDTV 1080P) Secondary(HDTV 1080P)
32		67.43 / 67.5	59.94 / 60	148.35/148.50	16	Top-and-Bottom Side-by-side(half)	Primary(HDTV 1080P) Secondary(HDTV 1080P)

7.2. HDMI Input(1.3)

No.	Resolution	H-freq(kHz)	V-freq.(kHz)	Pixel clock(MHz)	Proposed	3D input proposed mode
1	720*480	31.5	60	27.03	SDTV 480P	2D to 3D, Side by Side(Half), Top & Bottom, Checker Board, Frame Sequential, Row Interleaving, Column Interleaving
2	720*576	31.25	50	27	SDTV 576P	
3	1280*720	45.00	60.00	74.25	HDTV 720P	
4	1280*720	37.500	50	74.25	HDTV 720P	
5	1920*1080	33.75	60.00	74.25	HDTV 1080I	2D to 3D, Side by Side(Half), Top & Bottom
6	1920*1080	28.125	50.00	74.25	HDTV 1080I	
7	1920*1080	27.00	24.00	74.25	HDTV 1080P	2D to 3D, Side by Side(Half), Top & Bottom, Checker Board, Row Interleaving, Column Interleaving
8	1920*1080	28.12	25	74.25	HDTV 1080P	
9	1920*1080	33.75	30.00	74.25	HDTV 1080P	
10	1920*1080	67.50	60.00	148.5	HDTV 1080P	2D to 3D, Side by Side(Half), Top & Bottom, Checker Board, Single Frame Sequential, Row Interleaving, Column Interleaving
11	1920*1080	56.250	50	148.5	HDTV 1080P	

7.3. RF Input(3D supported mode manually)

No.	Resolution	Proposed	3D input proposed mode
1	HD	1080I 720P	2D to 3D Side by Side(Half) Top & Bottom
2	SD	576P 576I	
3	SD (ATV : CVBS / SCART)	-	

7.4. RF Input (3D supported mode automatically)

No.	Signal	3D input proposed mode
1	Frame Compatible	Side by Side(Half), Top & Bottom

7.5. USB, DLNA (Movie) Input (3D supported mode manually)

No.	Resolution	H-freq(kHz)	V-freq.(Hz)	Pixel clock(MHz)	3D input proposed mode
1	Under 704x480	-	-	-	2D to 3D
2	Over 704x480 interlaced	-	-	-	2D to 3D, Side by Side(Half), Top & Bottom
3	Over 704x480 progressive	-	50 / 60	-	2D to 3D, Side by Side(Half), Top & Bottom, Checker Board, Row Interleaving, Column Interleaving, Frame Sequential
4	Over 704x480 progressive	-	others	-	2D to 3D, Side by Side(Half), Top & Bottom, Checker Board, Row Interleaving, Column Interleaving

7.6. USB, DLNA (Photo) Input (3D supported mode manually)

No.	Resolution	H-freq(kHz)	V-freq.(Hz)	Pixel clock(MHz)	3D input proposed mode
1	Under 320x240	-	-	-	2D to 3D
2	Over 320x240	-	-	-	2D to 3D, Side by Side(Half), Top & Bottom

* USB, DNLA Input (3D supported mode automatically)

No.	Resolution	H-freq(kHz)	V-freq.(Hz)	Pixel clock(MHz)	3D input proposed mode
1	1080P	33.75	30	-	2D to 3D, Side by Side(Half)*,Top & Bottom*,Checker Board*, Row Interleaving, Column Interleaving(Photo : Side by Side(Half), Top&Bottom)

7.7. HDMI-PC Input (3D supported mode manually)

No.	Resolution	H-freq(kHz)	V-freq.(Hz)	Pixel clock(MHz)	3D input proposed mode	Proposed
1	1024*768	48.36	60	65	2D to 3D, Side by Side(half) Top & Bottom	HDTV 768P
2	1360*768	47.71	60	85.5		
3	1920*1080	67.500	60	148.50	2D to 3D, Side by Side(half), Top & Bottom, Checker Board, Single Frame Sequential, Row Interleaving, Column Interleaving	HDTV 1080P
4	Others	-	-	-	2D to 3D, Side by Side(half) Top & Bottom	640*350 720*400 640*480 800*600 1152*864

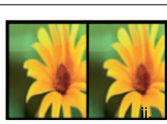
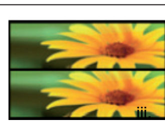
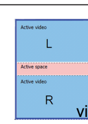
7.8. Component Input(3D) (3D supported mode manually)

No.	Resolution	H-freq(kHz)	V-freq.(Hz)	Pixel clock	Proposed	3D input proposed mode
1	1280*720	45.00	60.00	74.25	HDTV 720P	2D to 3D, Side by Side(Half), Top & Bottom
2	1280*720	37.500	50	74.25	HDTV 720P	
3	1920*1080	33.75	60.00	74.25	HDTV 1080I	
4	1920*1080	28.125	50.00	74.25	HDTV 1080I	
5	1920*1080	27.00	24.00	74.25	HDTV 1080P	
6	1920*1080	28.12	25	74.25	HDTV 1080P	
7	1920*1080	33.75	30.00	74.25	HDTV 1080P	
8	1920*1080	67.50	60.00	148.5	HDTV 1080P	
9	1920*1080	56.250	50	148.5	HDTV 1080P	
10	Others	-	-	-	SDTV	

7.9. Miracast, Widi (3D supported mode manually)

No.	Resolution	H-freq(kHz)	V-freq.(Hz)	Pixel clock(MHz)	3D input proposed mode
1	1024X768p	-	30 / 60	-	2D to 3D, Side by Side(Half), Top & Bottom
2.	1280x720p	-	30 / 60	-	
3	1920X1080p		30 / 60		
4	Others		-		2D to 3D

7.10. 3D Input mode

No.	Side by Side	Top & Bottom	Checker board	Single Frame Sequential	Frame Packing	2D to 3D
1						

ADJUSTMENT INSTRUCTION

1. Application Range

This specification sheet is applied to all of the LED TV with LD42B chassis.

2. Designation

(1) Because this is not a hot chassis, it is not necessary to use an isolation transformer. However, the use of isolation transformer will help protect test instrument.
(2) Adjustment must be done in the correct order.
(3) The adjustment must be performed in the circumstance of 25 °C ± 5 °C of temperature and 65 % ± 10 % of relative humidity if there is no specific designation.
(4) The input voltage of the receiver must keep AC 100-240 V~, 50/60 Hz.
(5) The receiver must be operated for about 5 minutes prior to the adjustment when module is in the circumstance of over 15.

In case of keeping module is in the circumstance of 0 °C, it should be placed in the circumstance of above 15 °C for 2 hours.

In case of keeping module is in the circumstance of below -20 °C, it should be placed in the circumstance of above 15 °C for 3 hours.

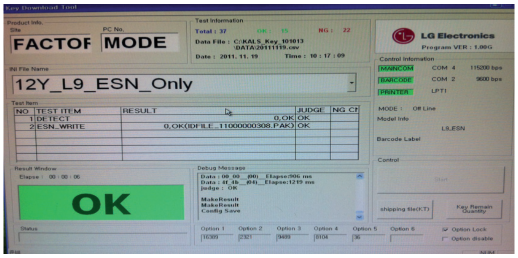
[Caution]
When still image is displayed for a period of 20 minutes or longer (Especially where W/B scale is strong. Digital pattern 13ch and/or Cross hatch pattern 09ch), there can some afterimage in the black level area.

3. Automatic Adjustment

3.1. MAC address D/L, CI+ key D/L, Widevine key D/L, ESN D/L, HDCP14/20 D/L, DTCP

Connect: USB port
Communication Prot connection

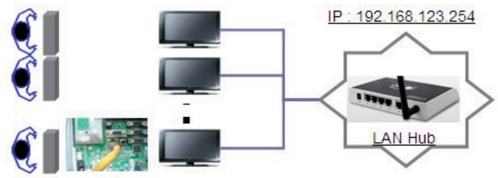
- Com 1,2,3,4 and 115200(Baudrate)
  Mode check: Online Only
- Check the test process: DETECT → MAC → CI → Widevine → ESN → HDCP14 → HDCP20 → DTCP
- Play: Press Enter key
- Result: Ready, Test, OK or NG
- Printer Out (MAC Address Label)



3.2. LAN Inspection

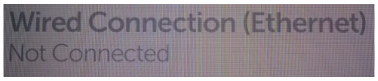
3.2.1. Equipment & Condition

- Each other connection to LAN Port of IP Hub and Jig

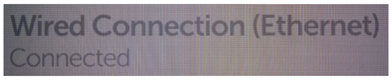


3.2.2. LAN inspection solution

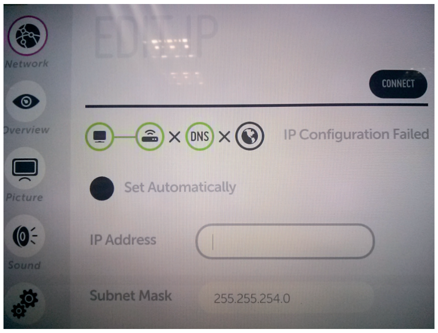
- LAN Port connection with PCB
- Setting automatic IP



↓



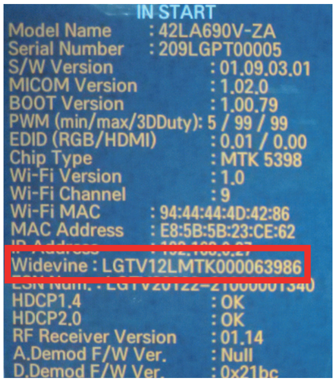
- If you want manual connection, enter Network connection at MENU Mode of TV. Press Start connection key, then Network will be connected.



- Setting state confirmation
  - If automatic setting is finished, you confirm IP and MAC Address at 'in start' menu mode.

3.2.3. WIDEVINE key Inspection

- Confirm key input data at the "IN START" MENU Mode.



3.3. LAN PORT INSPECTION(PING TEST)

Connect SET → LAN port == PC → LAN Port

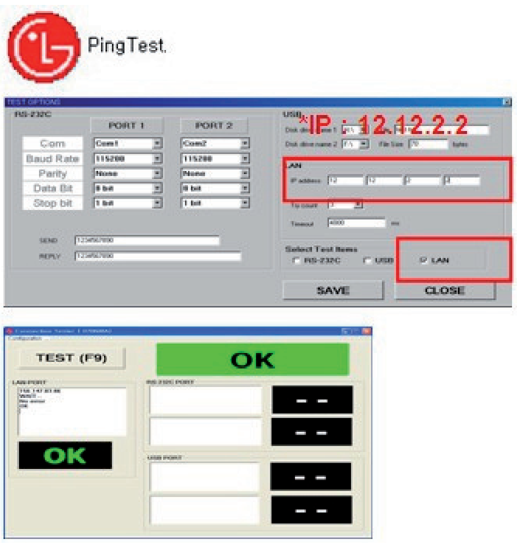
SET —— PC

3.3.1. Equipment setting

(1) Play the LAN Port Test PROGRAM.
(2) Input IP set up for an inspection to Test Program.
*IP Number : 12.12.2.2

3.3.2. LAN PORT inspection(PING TEST)

(1) Play the LAN Port Test Program.
(2) Connect each other LAN Port Jack.
(3) Play Test (F9) button and confirm OK Message.
(4) Remove LAN cable.



3.4. Model name & Serial number Download

3.4.1. Model name & Serial number D/L

- Press "P-ONLY" key of service remote control. (Baud rate : 115200 bps)
- Connect RS-232C Signal to USB Cable to USB.
- Write Serial number by use USB port.
- Must check the serial number at Instart menu.

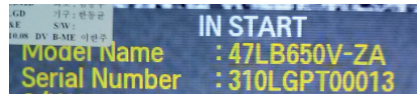
3.4.2. Method & notice

(1) Serial number D/L is using of scan equipment.
(2) Setting of scan equipment operated by Manufacturing Technology Group.
(3) Serial number D/L must be conformed when it is produced in production line, because serial number D/L is mandatory by D-book 4.0.

*** Manual Download (Model Name and Serial Number)**

If the TV set is downloaded by OTA or service man, sometimes model name or serial number is initialized.(Not always)
It is impossible to download by bar code scan, so It need Manual download.

1) Press the "Instart" key of Adjustment remote control.
2) Go to the menu "7.Model Number D/L" like below photo.
3) Input the Factory model name(ex 47LB650V-ZA) or Serial number like photo.

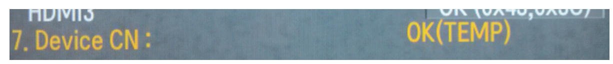


4) Check the model name Instart menu. → Factory name displayed. (ex 47LB650V-ZA)
5) Check the Diagnostics.(DTV country only) → Buyer model displayed. (ex 47LB650V-ZA)

3.5. CI+ Key checking method

- Check the Section 3.1

Check whether the key was downloaded or not at 'In Start' menu. (Refer to below).



=> Check the Download to CI+ Key value in LGset.

3.5.1. Check the method of CI+ Key value

(1) Check the method on Instart menu
(2) Check the method of RS232C Command

1) Into the main ass'y mode(RS232: aa 00 00)

CMD 1	CMD 2	Data 0	
A	A	0	0

2) Check the key download for transmitted command (RS232: ci 00 10)

CMD 1	CMD 2	Data 0	
C	I	1	0

3) Result value
- Normally status for download : OKx
- Abnormally status for download : NGx

3.5.2. Check the method of CI+ key value(RS232)

1) Into the main ass'y mode(RS232: aa 00 00)

CMD 1	CMD 2	Data 0	
A	A	0	0

2) Check the mothed of CI+ key by command (RS232: ci 00 20)

CMD 1	CMD 2	Data 0	
C	I	2	0

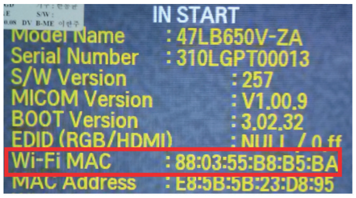
3) Result value
i 01 OK 1d1852d21c1ed5dcx
→ CI+ Key Value

3.6. WIFI MAC ADDRESS CHECK

(1) Using RS232 Command

	H-freq(kHz)	V-freq.(Hz)
Transmission	[A][I][][Set ID][][20][Cr]	[O][K][X] or [NG]

(2) Check the menu on in-start



4. Manual Adjustment

* ADC adjustment is not needed because of OTP(Auto ADC adjustment)

4.1. EDID DATA

4.1.1. 3D EDID

HDMI EDID DATA 3D

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	00	FF	FF	FF	FF	FF	FF	00	1E	6D	ⓐ		ⓑ			
10	ⓒ		01	03	80	A0	5A	78	0A	EE	91	A3	54	4C	99	26
20	0F	50	54	A1	08	00	31	40	45	40	61	40	71	40	81	80
30	01	01	01	01	01	01	02	3A	80	18	71	38	2D	40	58	2C
40	45	00	40	84	63	00	00	1E	66	21	50	B0	51	00	1B	30
50	40	70	36	00	40	84	63	00	00	1E	00	00	00	FD	00	3A
60	3E	1E	53	10	00	0A	20	20	20	20	20	20	ⓓ			
70	ⓓ														01	ⓔ1
80	02	03	3A	F1	4E	10	9F	04	13	05	14	03	02	12	20	21
90	22	15	01	29	3D	06	C0	15	07	50	09	57	07	ⓕ		
A0	ⓕ															
B0	ⓕ						ⓖ				02	3A	80	18	71	38
C0	2D	40	58	2C	45	00	40	84	63	00	00	1E	01	1D	80	18
D0	71	1C	16	20	58	2C	25	00	40	84	63	00	00	9E	01	1D
E0	00	72	51	D0	1E	20	6E	28	55	00	40	84	63	00	00	1E
F0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	ⓔ2

▪ Reference

- HDMI1 ~ HDMI3
- In the data of EDID, bellows may be different by S/W or Input mode.

ⓐ Product ID

HEX	EDID Table	DDC Function
0001	0100	Analog
0001	0100	Digital

ⓑ Serial No: Controlled on production line.

ⓒ Month, Year: Controlled on production line:

ex) Monthly : '01' → '01'

Year : '2014' → '18'

ⓓ Model Name(Hex): LGTV

Chassis	MODEL NAME(HEX)
LD42B	00 00 00 FC 00 4C 47 20 54 56 0A 20 20 20 20 20 20

ⓔ Checksum(LG TV): Changeable by total EDID data.

	ⓔ1	ⓔ2	ⓔ2	ⓔ3
		10bit /none XvYcc	8bit /none XvYcc	
HDMI1	E7	85	CC	X
HDMI2	E7	75	BC	X
HDMI3	E7	65	AC	X

ⓕ Vendor Specific(HDMI)

1) Deep color (module 10bit)

INPUT	MODEL NAME(HEX)
HDMI1	78 03 0C 00 10 00 B8 2D 20 C0 0E 01 4F 3F FC 08 10 18 10 06 10 16 10 28 10
HDMI2	78 03 0C 00 20 00 B8 2D 20 C0 0E 01 4F 3F FC 08 10 18 10 06 10 16 10 28 10
HDMI3	78 03 0C 00 30 00 B8 2D 20 C0 0E 01 4F 3F FC 08 10 18 10 06 10 16 10 28 10

2) None deep color (module 8bit)

INPUT	MODEL NAME(HEX)
HDMI1	78 03 0C 00 10 00 80 1E 20 C0 0E 01 4F 3F FC 08 10 18 10 06 10 16 10 28 10
HDMI2	78 03 0C 00 20 00 80 1E 20 C0 0E 01 4F 3F FC 08 10 18 10 06 10 16 10 28 10
HDMI3	78 03 0C 00 30 00 80 1E 20 C0 0E 01 4F 3F FC 08 10 18 10 06 10 16 10 28 10

ⓖ Colorimetry Data Block(HDMI)

1) The Model not supporting XvYcc

INPUT	MODEL NAME(HEX)
HDMI1	E3 05 00 00
HDMI2	E3 05 00 00
HDMI3	E3 05 00 00

4.1.2. 2D EDID

HDMI EDID DATA 2D

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	00	FF	FF	FF	FF	FF	FF	00	1E	6D	ⓐ		ⓑ			
10	ⓒ		01	03	80	A0	5A	78	0A	EE	91	A3	54	4C	99	26
20	0F	50	54	A1	08	00	31	40	45	40	61	40	71	40	81	80
30	01	01	01	01	01	01	02	3A	80	18	71	38	2D	40	58	2C
40	45	00	A0	5A	00	00	00	1E	66	21	50	B0	51	00	1B	30
50	40	70	36	00	A0	5A	00	00	00	1E	00	00	00	FD	00	3A
60	3E	1E	53	10	00	0A	20	20	20	20	20	20	ⓓ			
70	ⓓ														01	ⓔ1
80	02	03	29	F1	4E	10	9F	04	13	05	14	03	02	12	20	21
90	22	15	01	29	3D	06	C0	15	07	50	09	57	07	ⓕ		
A0	ⓕ					E3	05	00	00	01	1D	80	18	71	1C	16
B0	20	58	2C	25	00	A0	5A	00	00	00	9E	01	1D	00	80	51
C0	D0	1A	20	6E	88	55	00	A0	5A	00	00	00	1A	02	3A	80
D0	18	71	38	2D	40	58	2C	45	00	A0	5A	00	00	00	1E	66
E0	21	50	B0	51	00	1B	30	40	70	36	00	A0	5A	00	00	00
F0	1E	00	00	00	00	00	00	00	00	00	00	00	00	00	00	ⓔ2

▪ Reference

- HDMI1 ~ HDMI3
- In the data of EDID, bellows may be different by S/W or Input mode.

ⓐ Product ID

HEX	EDID Table	DDC Function
0001	0100	Analog
0001	0100	Digital

ⓑ Serial No: Controlled on production line.

ⓒ Month, Year: Controlled on production line:

ex) Monthly : '01' → '01'

Year : '2013' → '17'

ⓓ Model Name(Hex): LGTV

Chassis	MODEL NAME(HEX)
LD33B	00 00 00 FC 00 4C 47 20 54 56 0A 20 20 20 20 20 20

ⓔ Checksum(LG TV): Changeable by total EDID data.

	ⓔ1	ⓔ2	ⓔ3
HDMI1	42	1B	X
HDMI2	42	0B	X
HDMI3	42	FB	X

ⓕ Vendor Specific(HDMI)

INPUT	MODEL NAME(HEX)
HDMI1	67 03 0C 00 10 00 80 1E
HDMI2	67 03 0C 00 20 00 80 1E
HDMI3	67 03 0C 00 30 00 80 1E

4.2. White Balance Adjustment

4.2.1. Overview

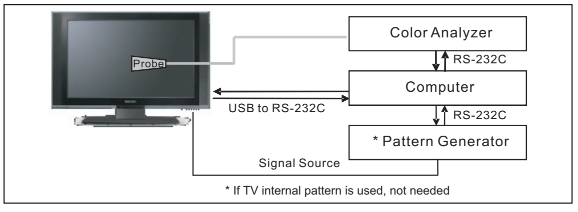
- W/B adj. Objective & How-it-works
  (1) Objective: To reduce each Panel's W/B deviation
  (2) How-it-works : When R/G/B gain in the OSD is at 192, it means the panel is at its Full Dynamic Range. In order to prevent saturation of Full Dynamic range and data, one of R/G/B is fixed at 192, and the other two is lowered to find the desired value.
  (3) Adjustment condition : normal temperature
  1) Surrounding Temperature : 25 °C ± 5 °C
  2) Surrounding Humidity : 20 % ~ 80 %

4.2.2. Equipment

(1) Color Analyzer: CA-210 (LED Module : CH 14)
(2) Adjustment Computer(During auto adj., RS-232C protocol is needed)
(3) Adjustment Remote control
(4) Video Signal Generator MSPG-925F 720p/204-Gray (Model: 217, Pattern: 49)
→ Only when internal pattern is not available

- Color Analyzer Matrix should be calibrated using CS-1000.

4.2.3. Equipment connection MAP



4.2.4. Adj. Command (Protocol)

<Command Format>

START	6E	A	50	A	LEN	A	03	A	CMD	A	00	A	VAL	A	CS	STOP

- LEN: Number of Data Byte to be sent
- CMD: Command
- VAL: FOS Data value
- CS: Checksum of sent data
- A: Acknowledge

Ex) [Send: JA_00_DD] / [Ack: A_00_okDDX]

- RS-232C Command used during auto-adjustment.

RS-232C COMMAND [CMD	ID	DATA]	Explanation
wb	00	00	Begin White Balance adjustment
wb	00	10	Gain adjustment(internal white pattern)
wb	00	1f	Gain adjustment completed
wb	00	20	Offset adjustment(internal white pattern)
wb	00	2f	Offset adjustment completed
wb	00	ff	End White Balance adjustment (internal pattern disappears)

Ex) wb 00 00 -> Begin white balance auto-adj.
wb 00 10 -> Gain adj.
ja 00 ff -> Adj. data
jb 00 c0
...
...
wb 00 1f → Gain adj. completed
*(wb 00 20(Start), wb 00 2f(end)) → Off-set adj.
wb 00 ff → End white balance auto-adj.

- Adj. Map

Applied Model : LD42B Chassis ALL MODELS

	Adj. item	Command (lower caseASCII)		Data Range (Hex.)		Default (Decimal)
		CMD1	CMD2	MIN	MAX	
Cool	R Gain	j	g	00	C0	
	G Gain	j	h	00	C0	
	B Gain	j	i	00	C0	
	R Cut					
	G Cut					
	B Cut					
Medium	R Gain	j	a	00	C0	
	G Gain	j	b	00	C0	
	B Gain	j	c	00	C0	
	R Cut					
	G Cut					
	B Cut					
Warm	R Gain	j	d	00	C0	
	G Gain	j	e	00	C0	
	B Gain	j	f	00	C0	
	R Cut					
	G Cut					

4.2.5. Adj. method

(1) Auto adj. method
1) Set TV in adj. mode using P-Only key.
2) Zero calibrate probe then place it on the center of the Display.
3) Connect Cable.(RS-232C to USB)
4) Select mode in adj. Program and begin adj.
5) When adj. is complete (OK Sign), check adj. status pre mode. (Cool, Medium, Warm)
6) Remove probe and RS-232C cable to complete adj.
- W/B Adj. must begin as start command “wb 00 00” , and finish as end command “wb 00 ff”, and Adj. offset if need.

(2) Manual adjustment. method
1) Set TV in Adj. mode using P-Only key.
2) Zero Calibrate the probe of Color Analyzer, then place it on the center of LCD module within 10 cm of the surface.
3) Press ADJ key → EZ adjust using adj. R/C → 7. White-Balance then press the cursor to the right(key ►).
(When right key(►) is pressed 204 Gray internal pattern will be displayed)
4) One of R Gain / G Gain / B Gain should be fixed at 192, and the rest will be lowered to meet the desired value.
5) Adjustment is performed in COOL, MEDIUM, WARM 3 modes of color temperature.
- If internal pattern is not available, use RF input. In EZ Adj. menu 7.White Balance, you can select one of 2 Test-pattern: ON, OFF. Default is inner(ON). By selecting OFF, you can adjust using RF signal in 204 Gray pattern.

- Adjustment condition and cautionary items
  1) Lighting condition in surrounding area
  Surrounding lighting should be lower 10 lux. Try to isolate adj. area into dark surrounding.
  2) Probe location
  : Color Analyzer(CA-210) probe should be within 10 cm and perpendicular of the module surface (80° ~ 100°)

4.2.6. Reference (White balance Adj. coordinate and color temperature)

- Luminance : 204 Gray
- Standard color coordinate and temperature using CS-1000 (over 26 inch)

Mode	Coordinate		Temp	∆uv
	x	y		
Cool	0.271	0.270	13000 K	0.0000
Medium	0.286	0.289	9300 K	0.0000
Warm	0.313	0.329	6500 K	0.0000

- Standard color coordinate and temperature using CA-210(CH 14)

Mode	Coordinate		Temp	∆uv
	x	y		
Cool	0.271 ± 0.002	0.270 ± 0.002	13000 K	0.0000
Medium	0.286 ± 0.002	0.289 ± 0.002	9300 K	0.0000
Warm	0.313 ± 0.002	0.329 ± 0.002	6500K	0.0000

4.2.7. LED White balance table

- EDGE LED module change color coordinate because of aging time.
- Apply under the color coordinate table, for compensated aging time.

Only march to December & Global
Model: (normal line)LGD (LB5xxx, LB6xxx, LB7xxx, LB8xxx)

NC4.0	Aging time (Min)	Cool		Medium		Warm	
		x	y	x	y	x	y
		271	270	286	289	313	329
1	0-2	282	289	297	308	324	348
2	3-5	281	287	296	306	323	346
3	6-9	279	284	294	303	321	333
4	10-19	277	280	292	299	319	339
5	20-35	275	277	290	296	317	336
6	36-49	274	274	289	293	316	333
7	50-79	273	272	288	291	315	331
8	80-119	272	271	287	290	314	330
9	Over 120	271	270	286	289	313	329

Only January to Febuary & Global
Model: (normal line)LGD (LB5xxx, LB6xxx, LB7xxx, LB8xxx)

NC4.0	Aging time (Min)	Cool		Medium		Warm	
		x	y	x	y	x	y
		271	270	286	289	313	329
1	0-5	286	295	301	314	328	354
2	6-10	284	290	299	309	326	349
3	11-20	282	287	297	306	324	346
4	21-30	279	283	294	302	321	342
5	31-40	276	278	291	297	318	337
6	41-50	274	275	289	294	316	334
7	51-80	273	272	288	291	315	331
8	81-119	272	271	287	290	314	330
9	Over 120	271	270	286	289	313	329

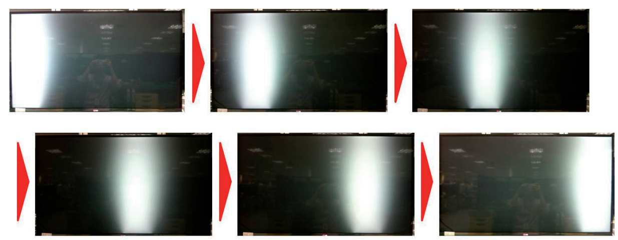
AUO, INX, Sharp, CSOT, BOE (Cool : 13000 K)

NC4.0	Cool		Medium		Warm	
	x	y	x	y	x	y
spec	271	270	286	289	313	329
target	278	280	293	299	320	339

4.3. Local Dimming Function Check

(1) Normal Edge LED Model

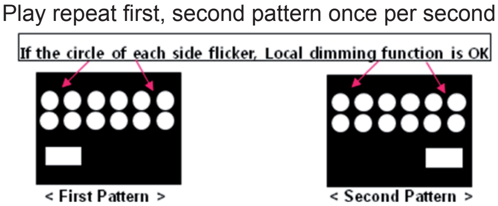
Step 1) Turn on TV.
Step 2) Press “TILT” key on the Adj. Remote control.
Step 3) At the Local Dimming mode, module Edge Backlight moving right to left Back light of IOP module moving.
Step 4) Confirm the Local Dimming mode.
Step 5) Press "exit" key.



Local Dimming Demo.
(Edge LED Model)

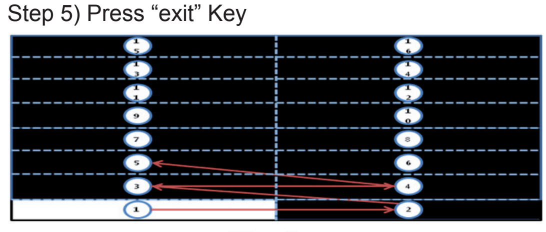
(2) Only 50inch AUO Local dimming Model(50LA66)

- Test method
  Insert the USB memory included video file below inspection pattern in Poweronly mode.
  Play repeat first, second pattern once per second



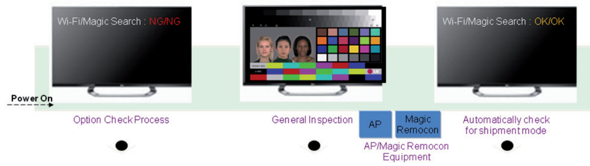
(3) Only LA71 Series LGD Local Dimming Model (47/55LA71, 16 block)

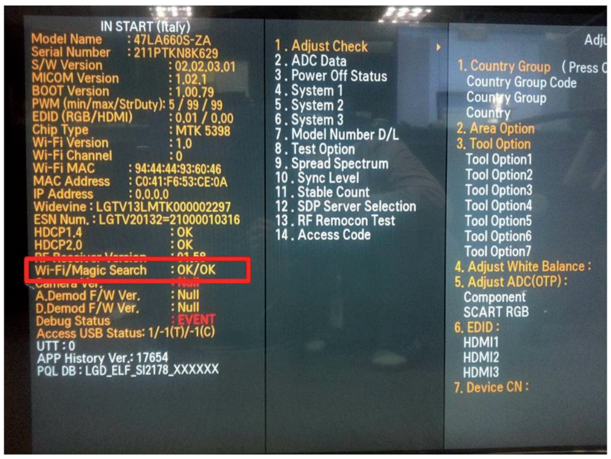
Step 1) Turn on TV
Step 2) Press “TILT” key on the Adj. R/C.
Step 3) At the Local Dimming mode, module Edge Backlight moving left to right, bottom to Up, Back light of ALEF module moving. (No1->2->3->….->14 ->15->16)
Step 4) Confirm the Local Dimming mode
Step 5) Press “exit” Key



4.4. Magic Motion Remote control test

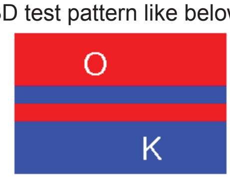
- Results are automatically marked in Instart OSD after through the AP/Magic Remocon Equipment on the line





4.5. 3D function test(Except Non-3D product)

(Pattern Generator MSHG-600, MSPG-6100[Support HDMI1.4])
* HDMI mode NO. 872 , pattern No.83
(1) Please input 3D test pattern like below.

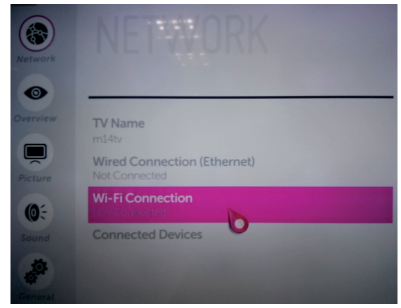


(2) When 3D OSD appear automatically, then select OK key.

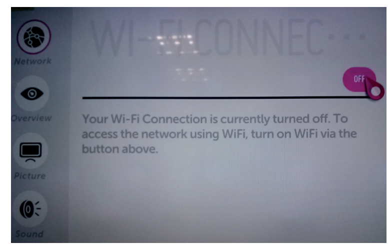
(3) Don't wear a 3D Glasses, check the picture like below.

4.6. Wi-Fi Test

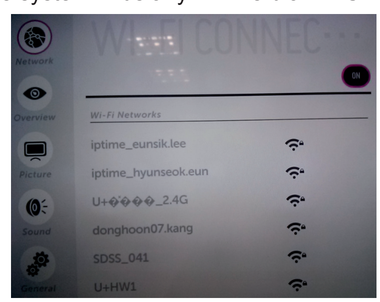
Step 1) Turn on TV
Step 2) Select Wi-Fi Connection option in Network Menu.



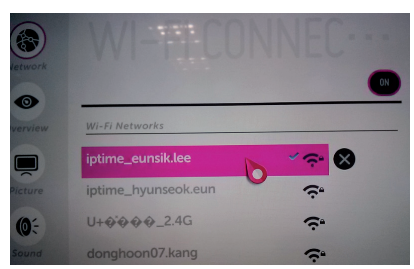
Step 3) Click Off Button to On in Wi-Fi Connection.



Step 4) The system finds any AP like blow PIC.



Step 5) Select the AP you want to connect.



4.7. LNB voltage and 22KHz tone check

(only for DVB-S/S2 model)

▪ Test method

(1) Set TV in Adj. mode using POWER ON.
(2) Connect cable between satellite ANT and test JIG.
(3) Press Yellow key(ETC+SWAP) in Adj Remote control to make LNB on.
(4) Check LED light 'ON' at 18 V menu.
(5) Check LED light 'ON' at 22 KHz tone menu.
(6) Press Blue key(ETC+PIP INPUT) in Adj Remote control to make LNB off.
(7) Check LED light 'OFF' at 18 V menu.
(8) Check LED light 'OFF' at 22 KHz tone menu.

▪ Test result

(1) After press LNB On key, '18 V LED' and '22 KHz tone LED' should be ON.
(2) After press LNB OFF key, '18 V LED' and '22 KHz tone LED' should be OFF.

4.8. Option selection per country

4.8.1. Overview

- Option selection is only done for models in Non-EU

4.8.2. Method

(1) Press ADJ key on the Adj. R/C, then select Country Group Meun.
(2) Select Country Group Code 04 or Country Group EU.

5. Tool Option selection

▪ Method : Press "ADJ" key on the Adjustment remote control, then select Tool option.

6. Ship-out mode check(In-stop)

▪ After final inspection, press "IN-STOP" key of the Adjustment remote control and check that the unit goes to Stand-by mode.

7. GND and Internal Pressure check

7.1. Method

(1) GND & Internal Pressure auto-check preparation
- Check that Power cord is fully inserted to the SET. (If loose, re-insert)

(2) Perform GND & Internal Pressure auto-check
- Unit fully inserted Power cord, Antenna cable and A/V arrive to the auto-check process.
- Connect D-terminal to AV JACK TESTER
- Auto CONTROLLER(GWS103-4) ON
- Perform GND TEST
- If NG, Buzzer will sound to inform the operator.
- If OK, changeover to I/P check automatically. (Remove CORD, A/V form AV JACK BOX.)
- Perform I/P test
- If NG, Buzzer will sound to inform the operator.
- If OK, Good lamp will lit up and the stopper will allow the pallet to move on to next process.

7.2. Checkpoint

▪ TEST voltage

(1) DQA Test
- GND: 1.5 KV / min at 100 mA
- SIGNAL: 3 KV / min at 100 mA

(2) Mass Production Line Test
- GND: AC 1.5 KV / sec, Cut off current not exceed 100 mA

▪ TEST time: DQA 1 min, Mass Production Line 1 sec

▪ TEST POINT
- GND TEST = POWER CORD GND & SIGNAL CABLE METAL GND
- Internal Pressure TEST = POWER CORD GND & LIVE & NEUTRAL

▪ LEAKAGE CURRENT: At 0.5 mArms

8. Audio

Measurement condition:

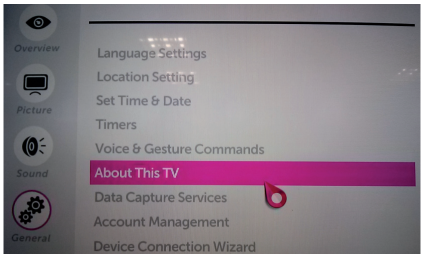
No.	Item	Min	Typ	Max	Unit	Remark
1.	Audio practical max Output, L/R (Distortion=10% max Output)	9	10	12	W	EQ Off AVL Off Clear Voice Off
			8.10	10.8	Vrms	
2.	Speaker (8Ω Impedance)	9	10	12	W	

(1) RF input: Mono, 1 KHz sine wave signal, 100 % Modulation
(2) CVBS, Component: 1 KHz sine wave signal 0.5 Vrms
(3) RGB PC: 1 KHz sine wave signal 0.7 Vrms

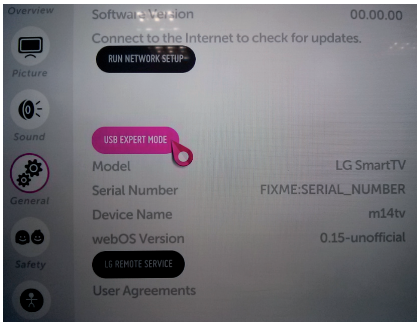
9. USB S/W Download(Service only)

(1) Put the USB Stick to the USB socket.

(2) Go to General menu then enter to About This TV.



(3) Enter the USB EXPERT MODE.



(4) Updating is starting.

(5) Updating completed, the TV will restart automatically

(6) If your TV is turned on, check your updated version and Tool option. (explain the Tool option, next stage)

* If downloading version is more high than your TV have, TV can lost all channel data. In this case, you have to channel recover. if all channel data is cleared, you didn't have a DTV/ATV test on production line.

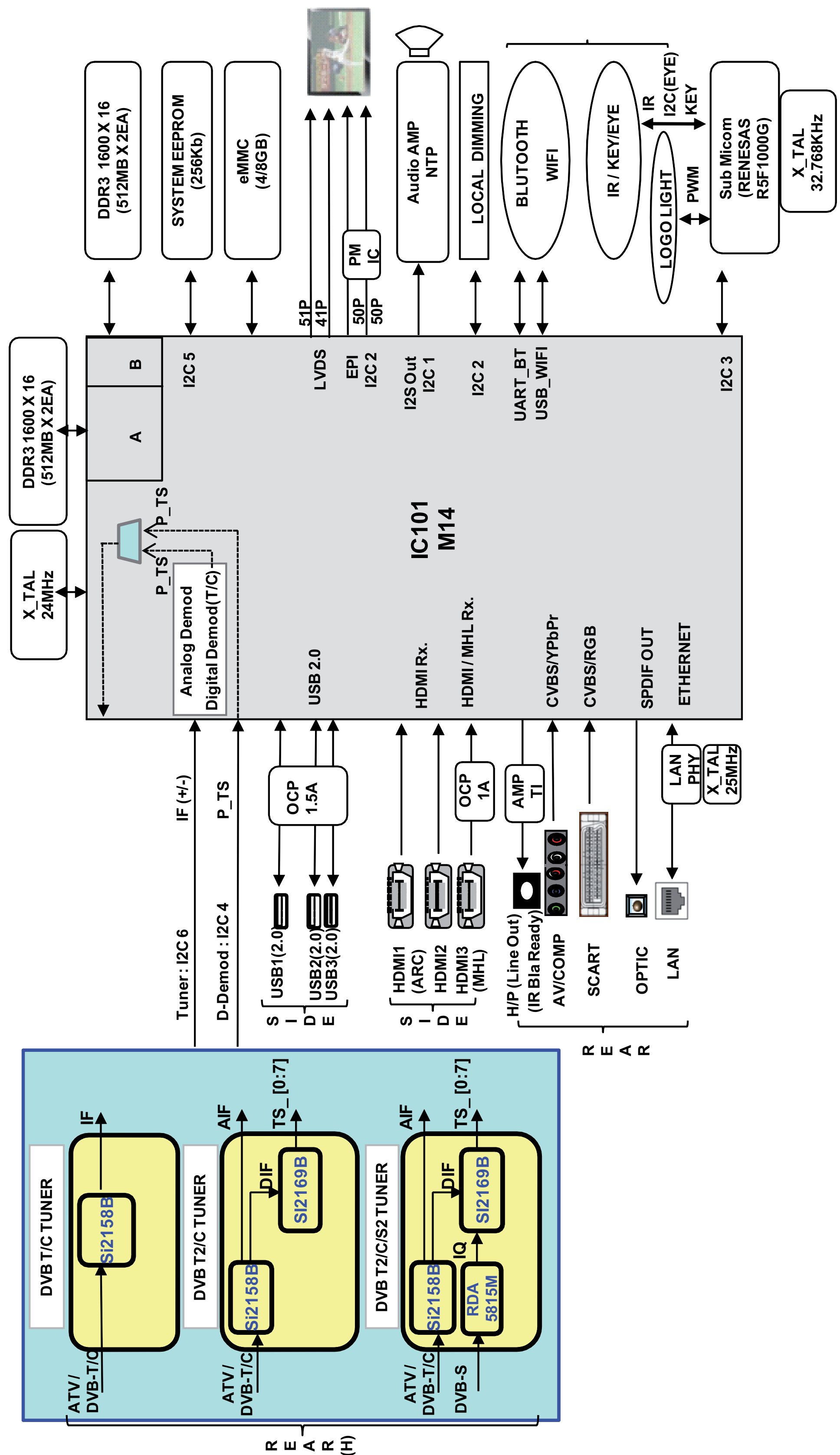
* After downloading, have to adjust Tool Option again.

(1) Push "IN-START" key in service remote control.

(2) Select "Tool Option 1" and push "OK" key.

(3) Punch in the number. (Each model has their number)

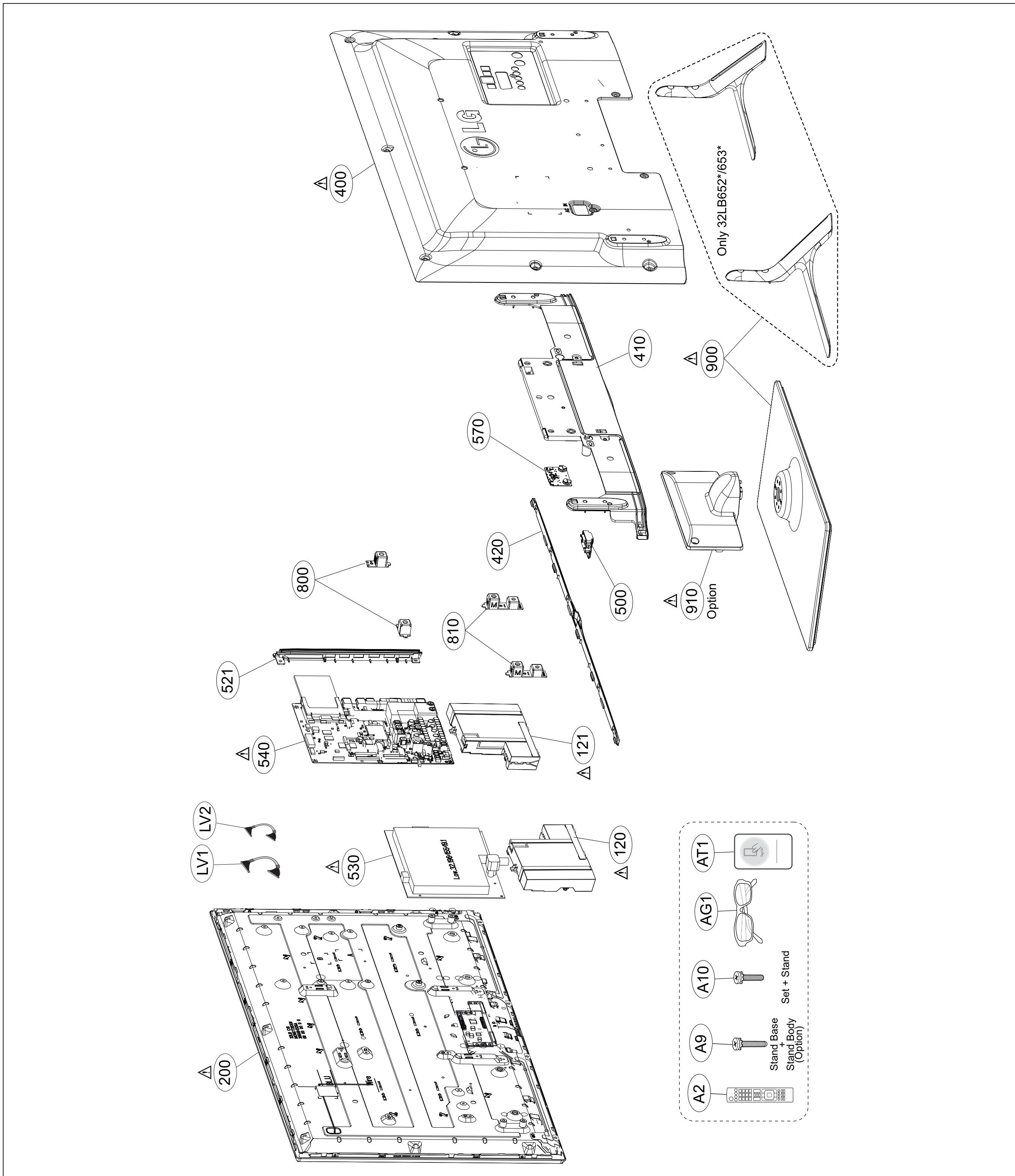
BLOCK DIAGRAM

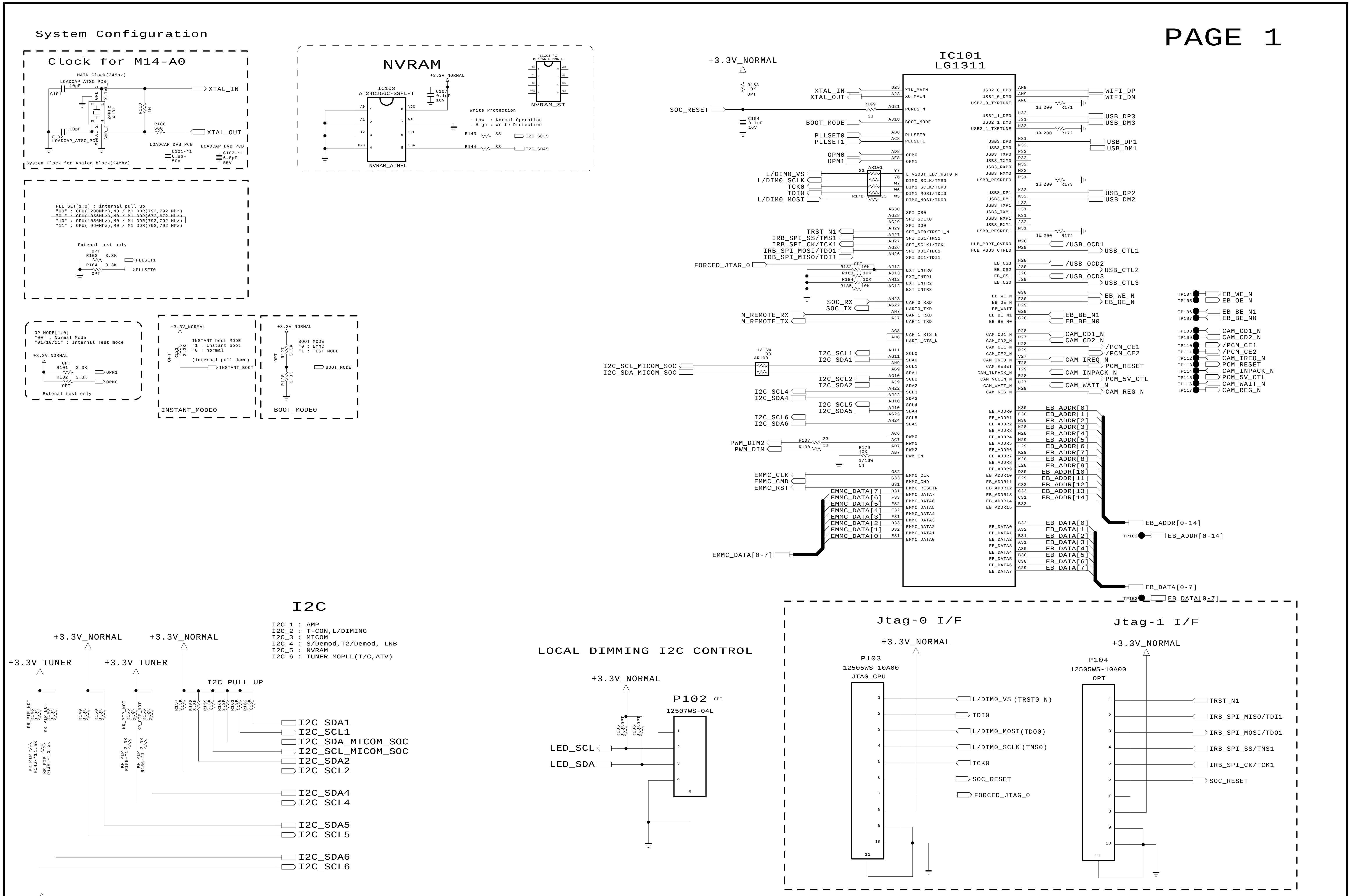


EXPLODED VIEW

IMPORTANT SAFETY NOTICE

Many electrical and mechanical parts in this chassis have special safety-related characteristics. These parts are identified by ⚠ in the Schematic Diagram and EXPLODED VIEW.
It is essential that these special safety parts should be replaced with the same components as recommended in this manual to prevent X-RADIATION, Shock, Fire, or other Hazards.
Do not modify the original design without permission of manufacturer.





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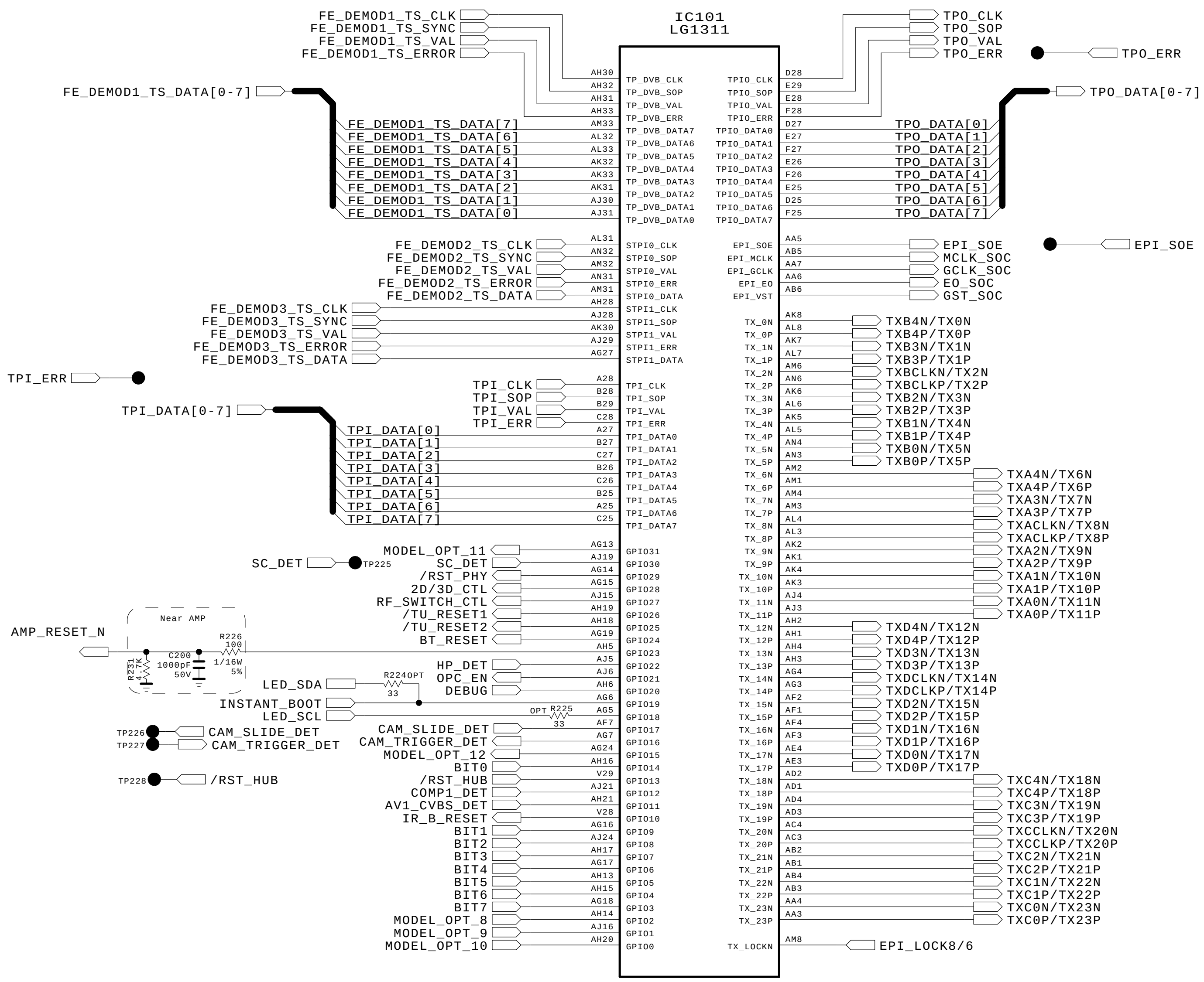
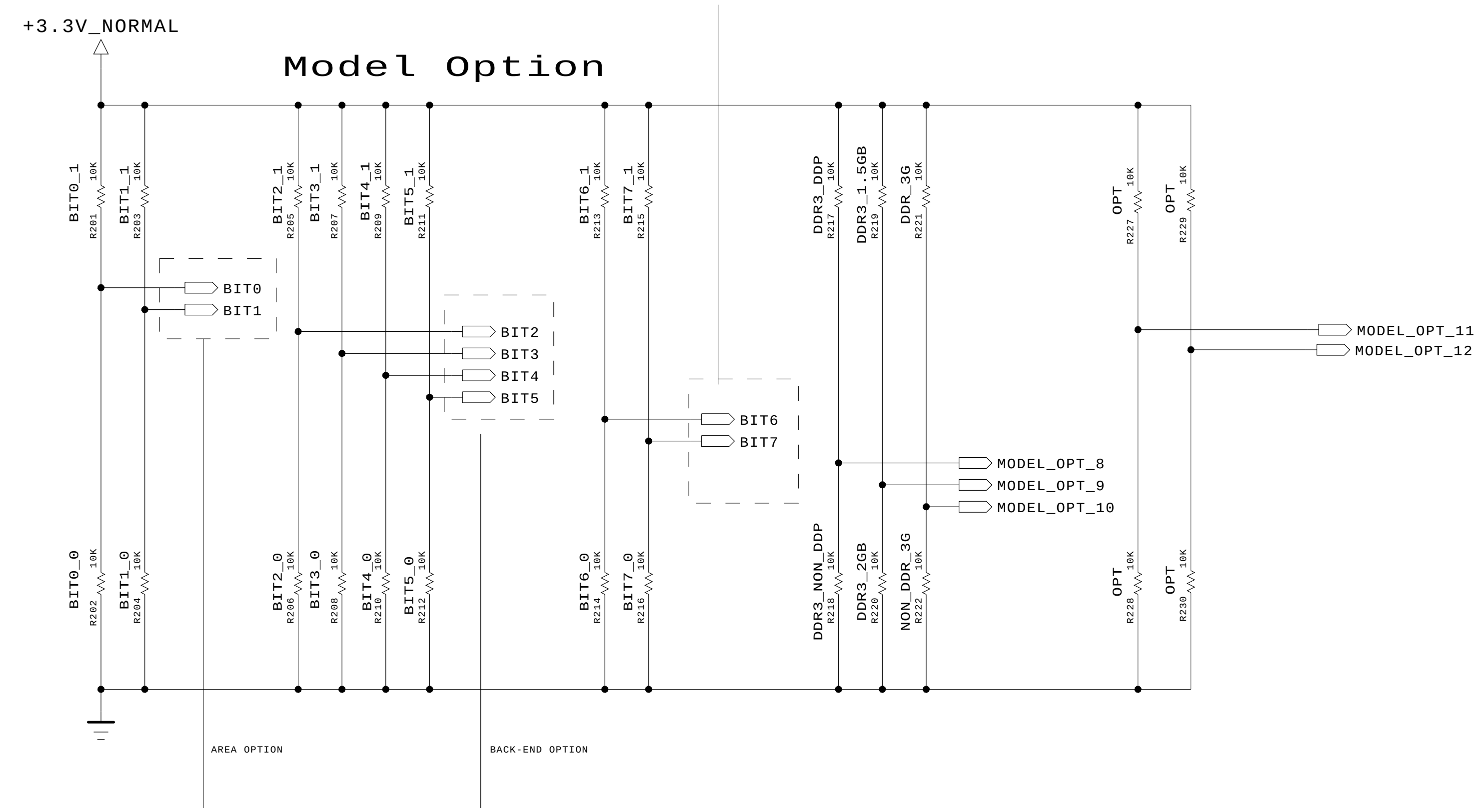
LG ELECTRONICS

MODEL	MID_LG1311	DATE	2013.04.04
BLOCK	M14 Symbol A	SHEET	1 / 31

M14-Peripheral





BIT [6/7]	EU/CIS	AJJA	TAIWAN/COL	CHINA/HONG	KOREA	NORTH AMERICA	BRAZIL	JAPAN	
0 / 0	T/C	T/C	T/C	Default	ATSC PIP	ATSC PIP	ISDB PIP	Default	
0 / 1	T2/C/S2/ATV_EXT	T2/C/ATV_EXT	T2/C PIP		ATV_SOC	ATV_SOC	ISDB		
1 / 0	T2/C	T2/C/ATV_SOC	T2/C		ATV_EXT	ATV_EXT			
1 / 1	T2/C/S2/ATV_SOC	T2/C/S2							

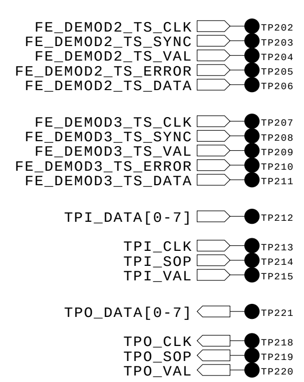
AREA OPTION

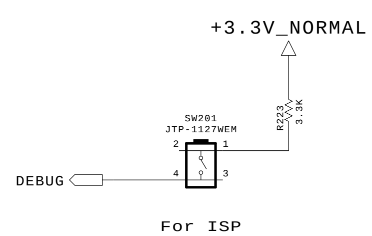
BIT [0/1]	DVB	ATSC	JP	
0 / 0	TAIWAN/COLOM	N/AMERICA		
0 / 1	CHINA/HONGKONG	KOREA	JAPAN	
1 / 0	EU/CIS	S/AMERCIA		
1 / 1	ASIA/AFRICA			

BACK-END OPTION

BIT[2/3/4/5]	TYPE	FHD	FRC	PANEL TYPE
0 / 0 / 0 / 0	EPI	FHD,	120Hz,	V14 (8 lane)
0 / 0 / 0 / 1	EPI	FHD,	120Hz,	v14_32inch (6 lane)
0 / 0 / 1 / 0	EPI	FHD,	120Hz,	V13 (6 lane)
0 / 0 / 1 / 1	EPI	FHD,	120Hz,	V12 (6 lane)
0 / 1 / 0 / 0	EPI	FHD,	60Hz,	V14_32 inch (6lane)
0 / 1 / 0 / 1	LVDS	FHD,	120Hz	
0 / 1 / 1 / 0	LVDS	FHD,	60Hz	
0 / 1 / 1 / 1	LVDS	HD,	60Hz	
1 / 0 / 0 / 0	LVDS	FHD,	60Hz,	CP BOX
1 / 0 / 0 / 1	LVDS	HD,	60Hz	SMALL SMART
1 / 0 / 1 / 0	Vby1	FHD,	120Hz	OLED
1 / 0 / 1 / 1	LVDS	FHD,	120Hz	OLED
1 / 1 / 0 / 0				
1 / 1 / 0 / 1				
1 / 1 / 1 / 0				
1 / 1 / 1 / 1				

		LOW	HIGH
MODEL_OPT_8	DDR3	NON_DDP	DDP
MODEL_OPT_9	DDR3	2GB	1.5GB
MODEL_OPT_10	FOR UD	NON_DDR3 3G	DDR3 3G
MODEL_OPT_11			
MODEL_OPT_12			





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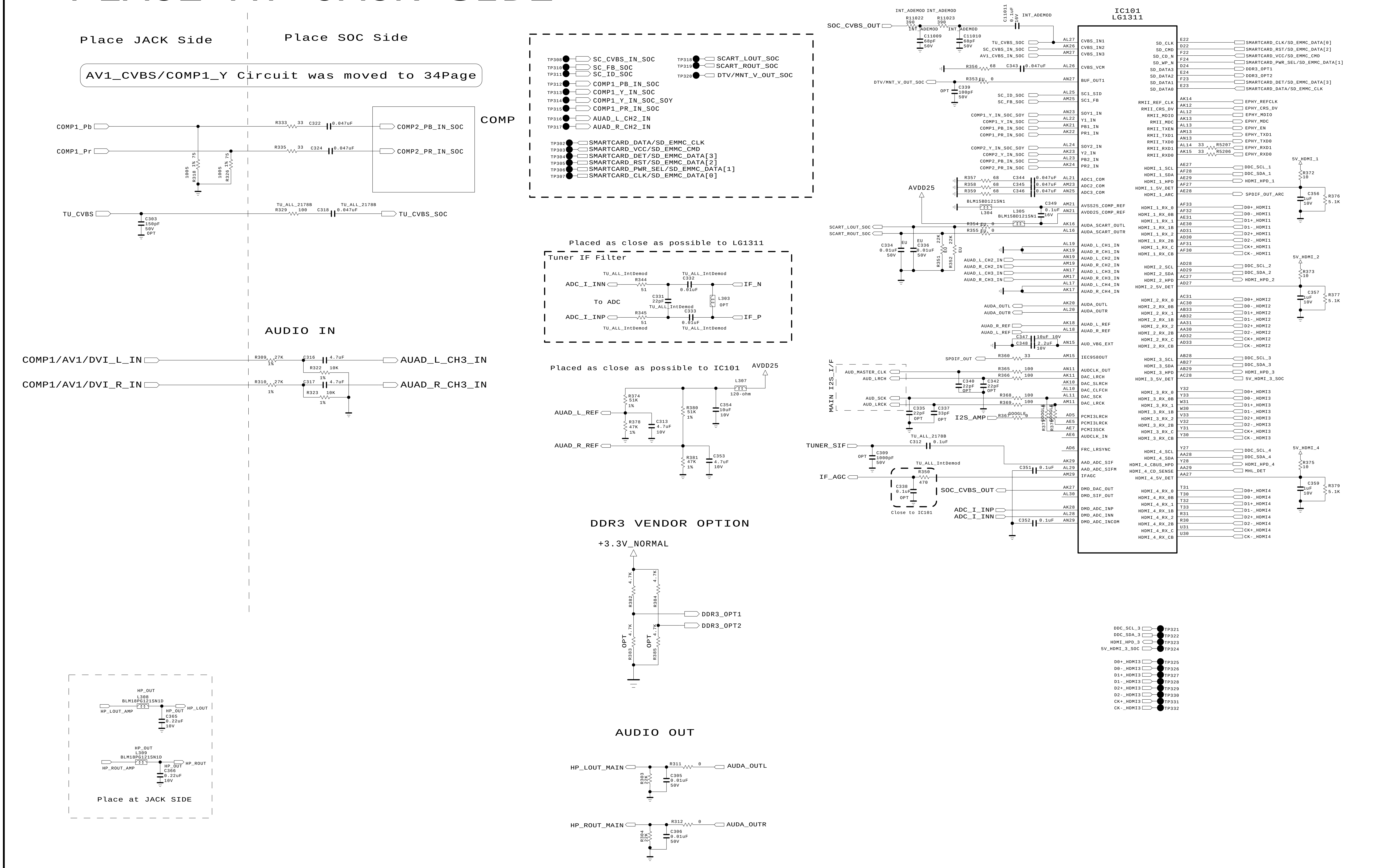
MODEL	MID_LG1311	DATE	2013.04.04
BLOCK	M14 Symbol B	SHEET	2 / 31

M14-Display In/Out

PLACE AT JACK SIDE



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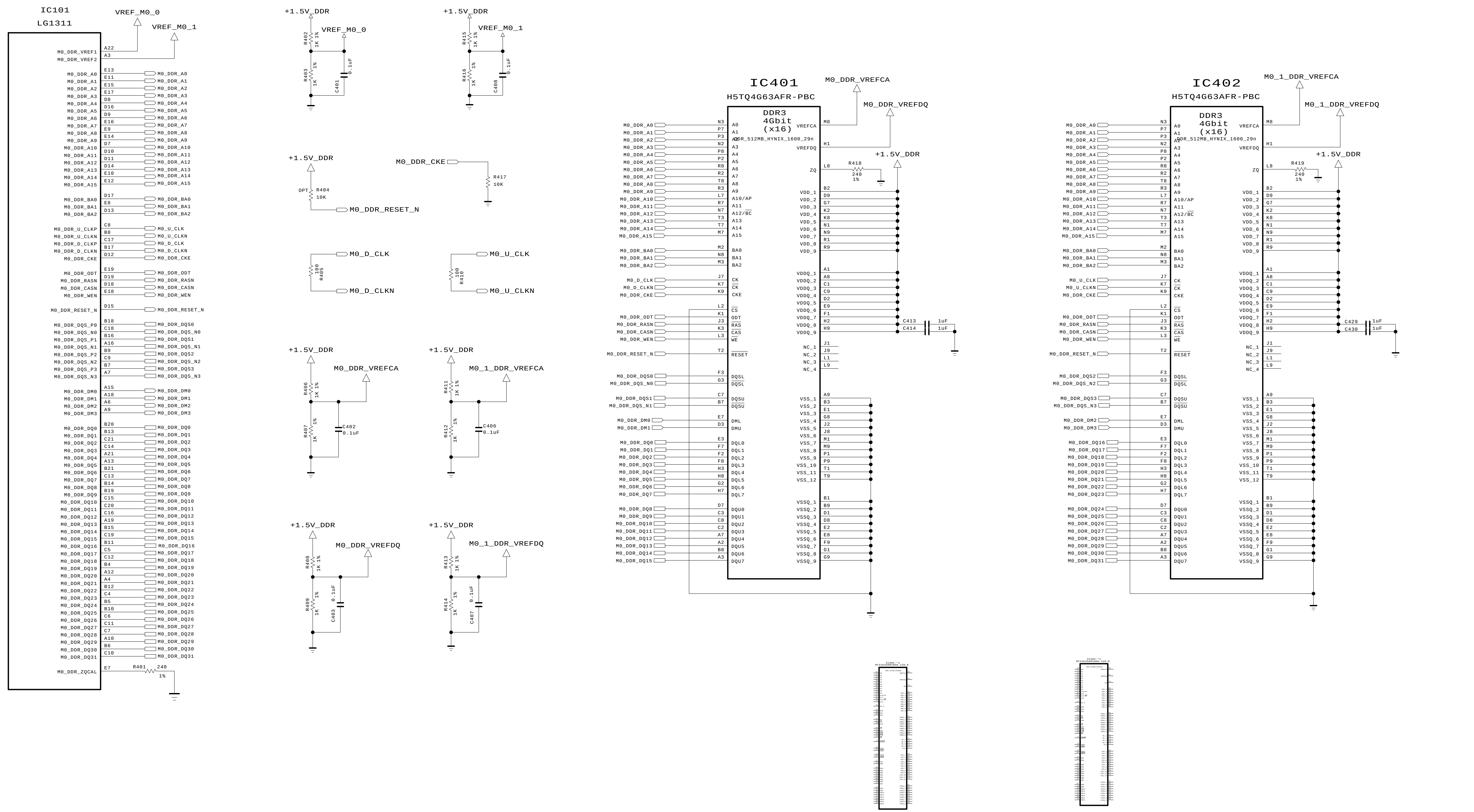
MODEL	MID_LG1311	DATE	2013.04.04
BLOCK	M14 Symbol C	SHEET	3 / 31



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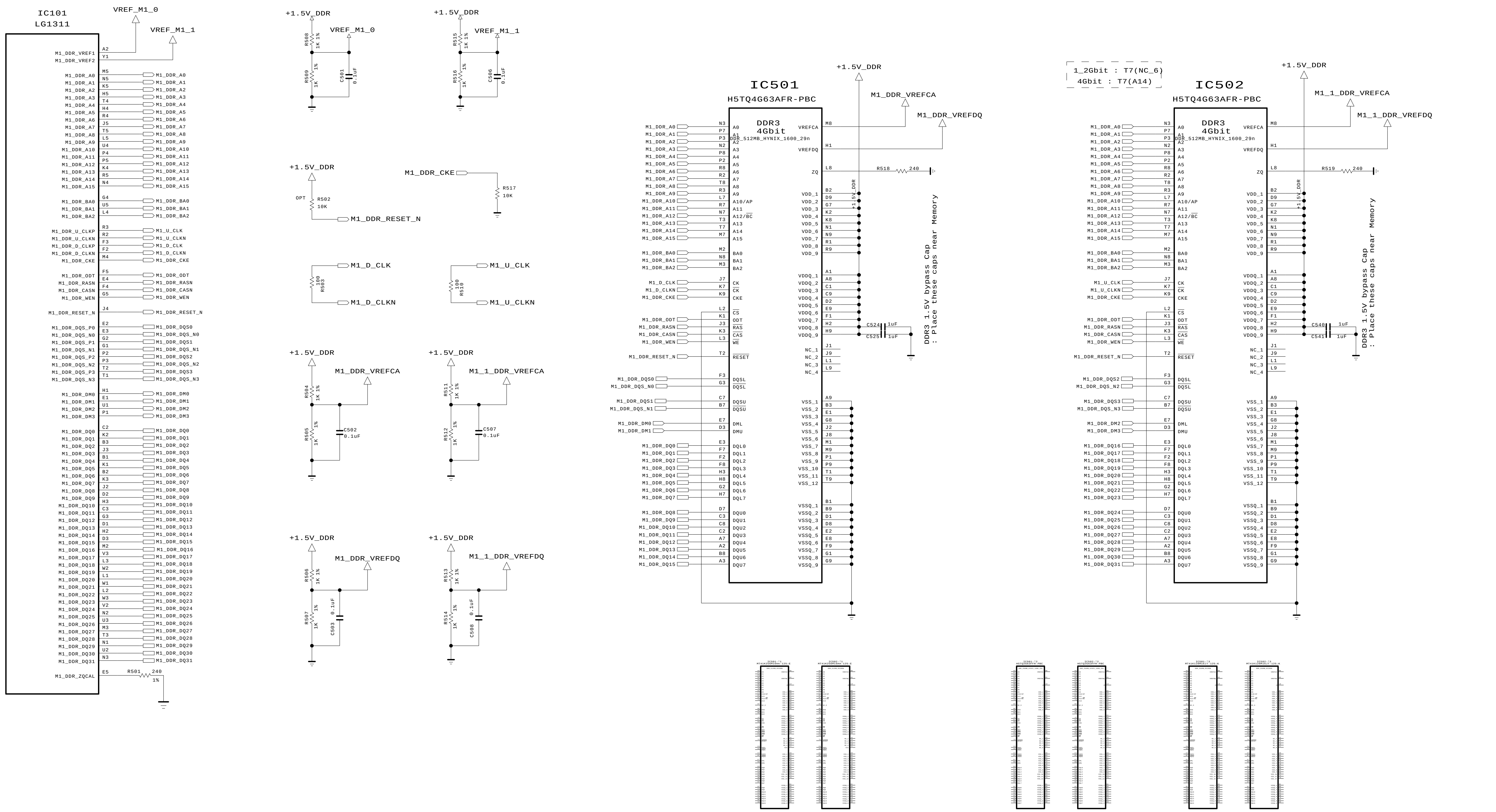
MODEL	MID_LG1311	DATE	2013.04.04
BLOCK	M14 DDR3-M0	SHEET	4 / 31



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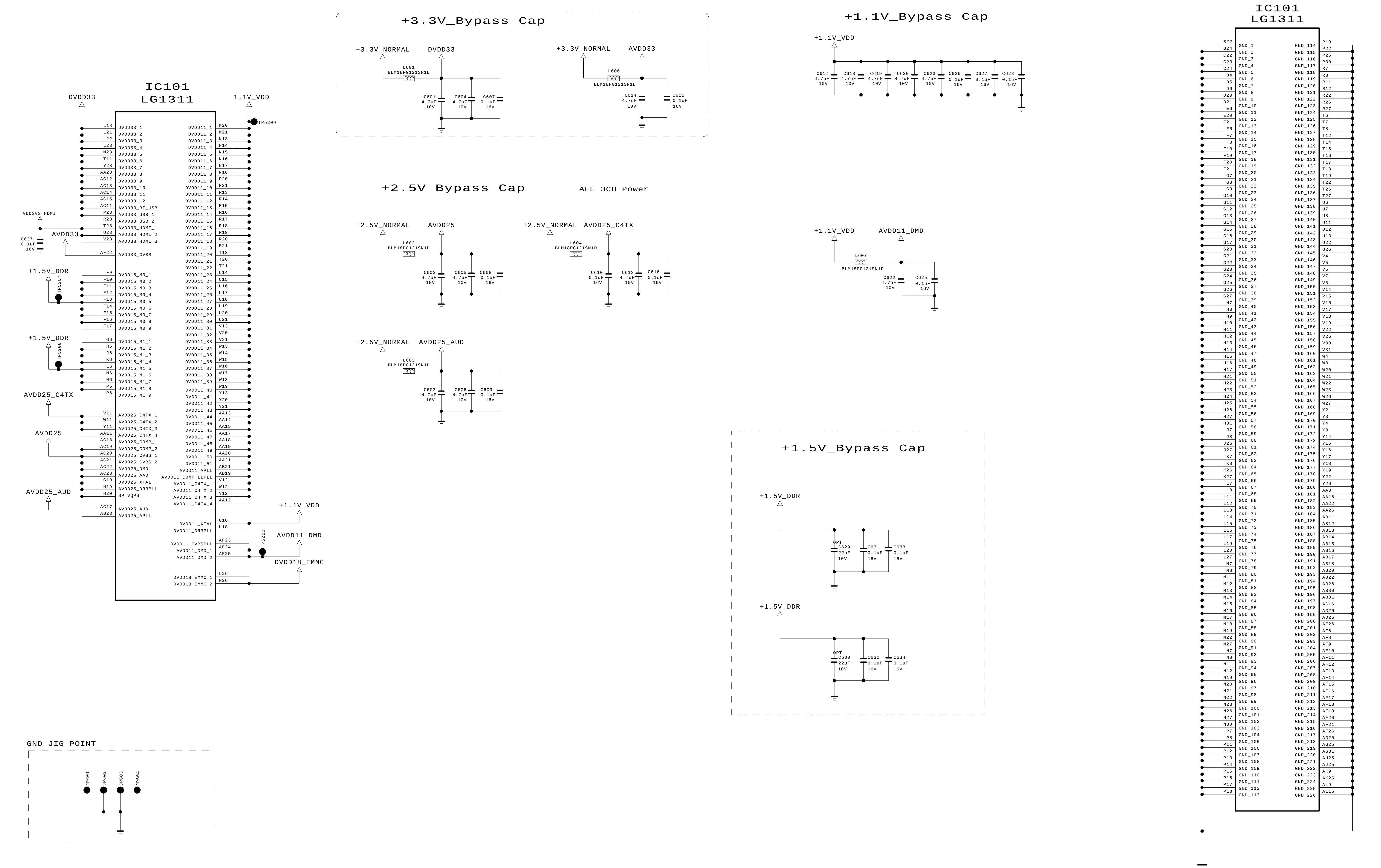
MODEL	MID_LG1311	DATE	2013.04.04
BLOCK	M14 DDR3-M1	SHEET	5 / 31

PAGE 6



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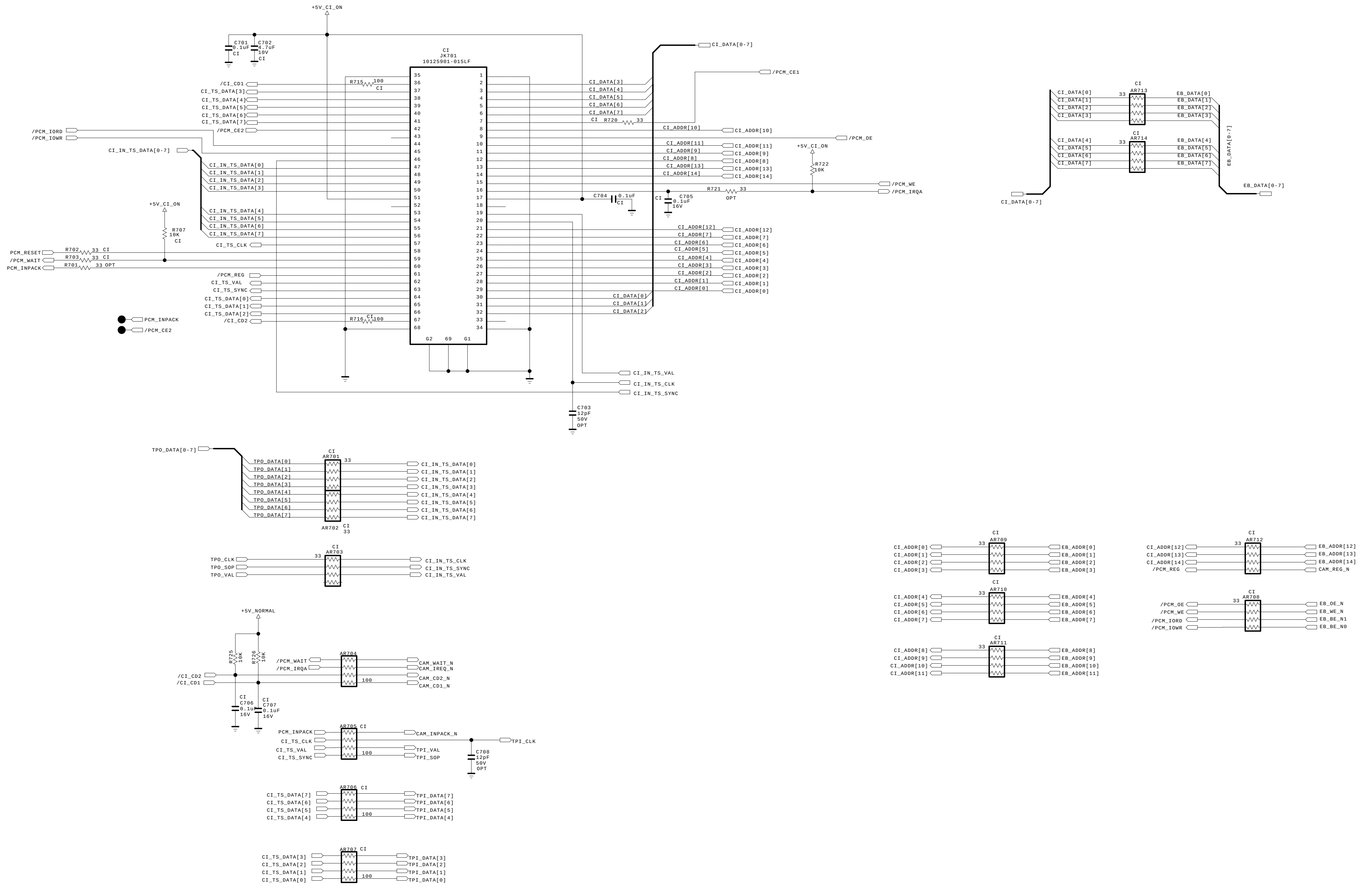
MODEL	MID_LG1311	DATE	2013.04.04
BLOCK	VCC & GND	SHEET	6 / 31



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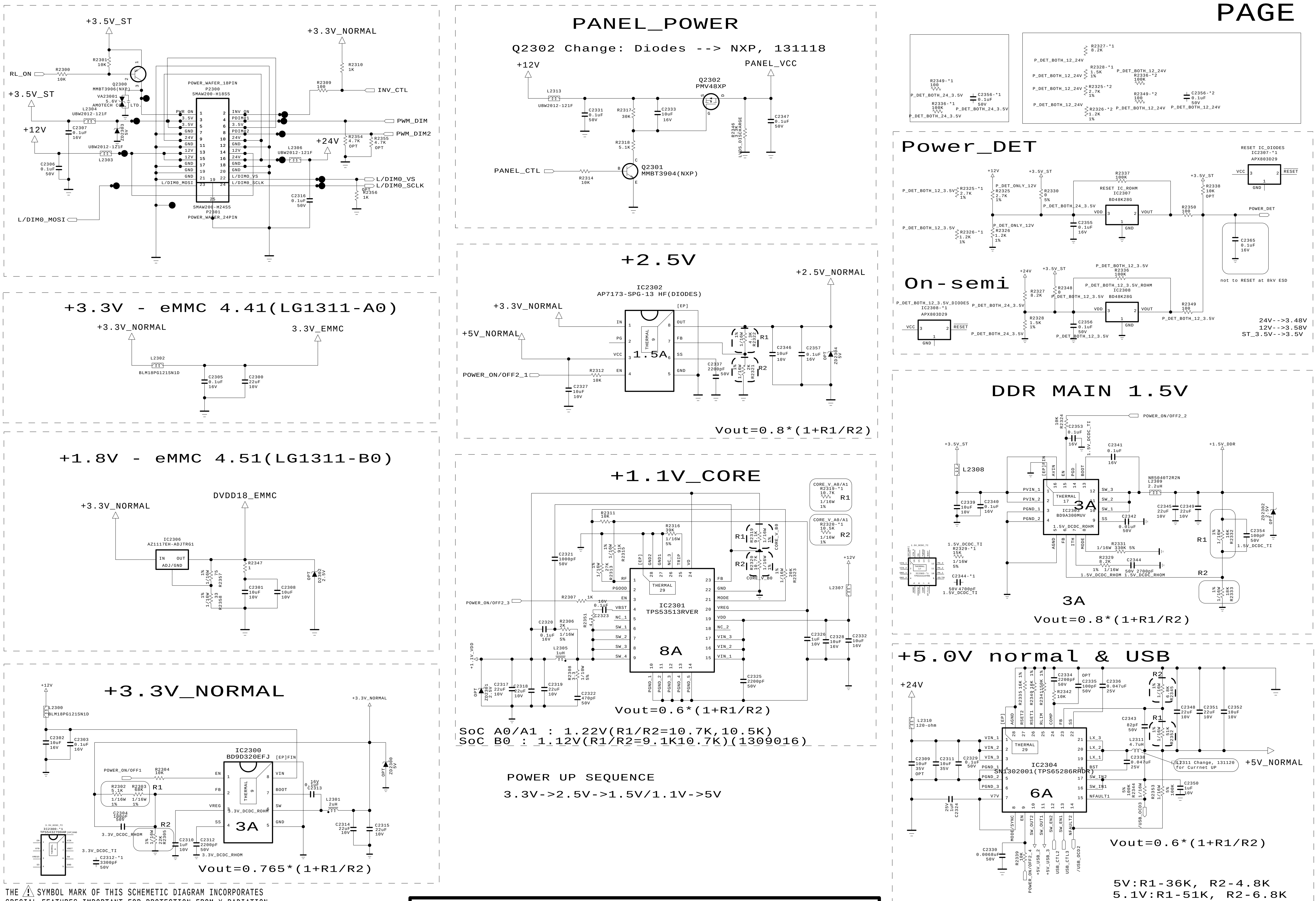
MODEL	MID_LG1311	DATE	2013.03.22
BLOCK	PCMCIA	SHEET	7 / 31



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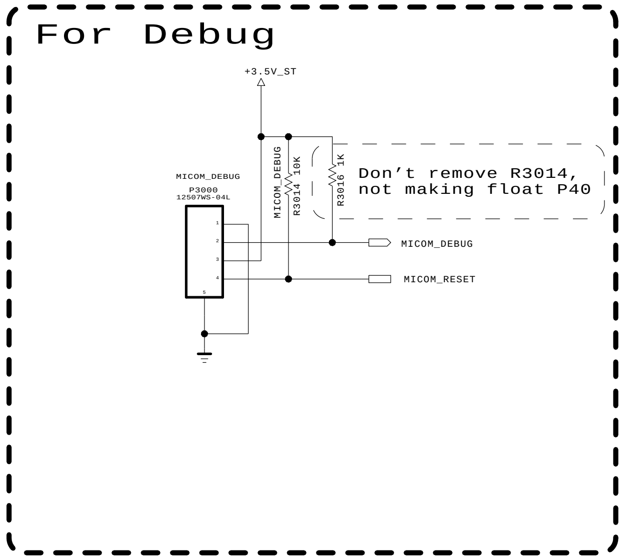
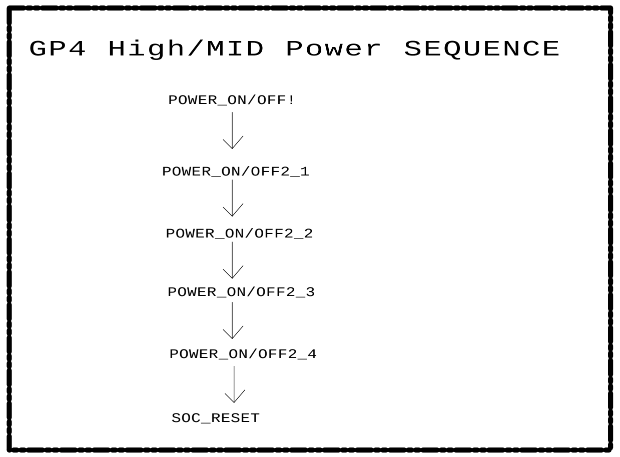
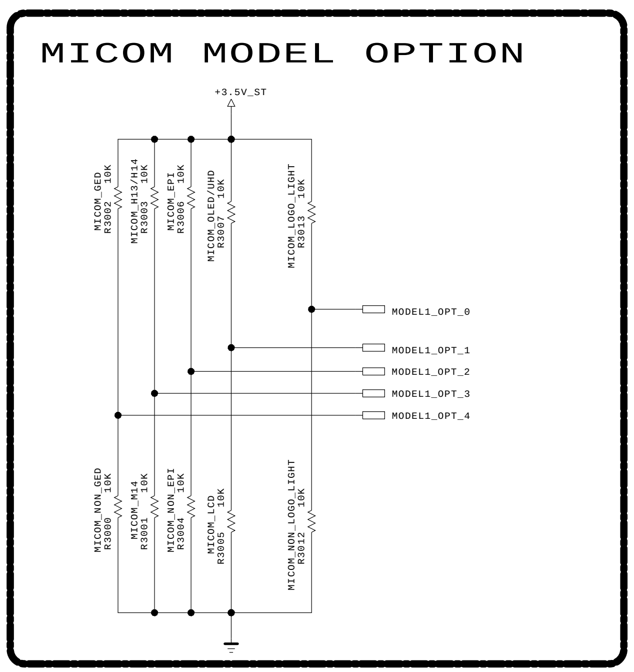
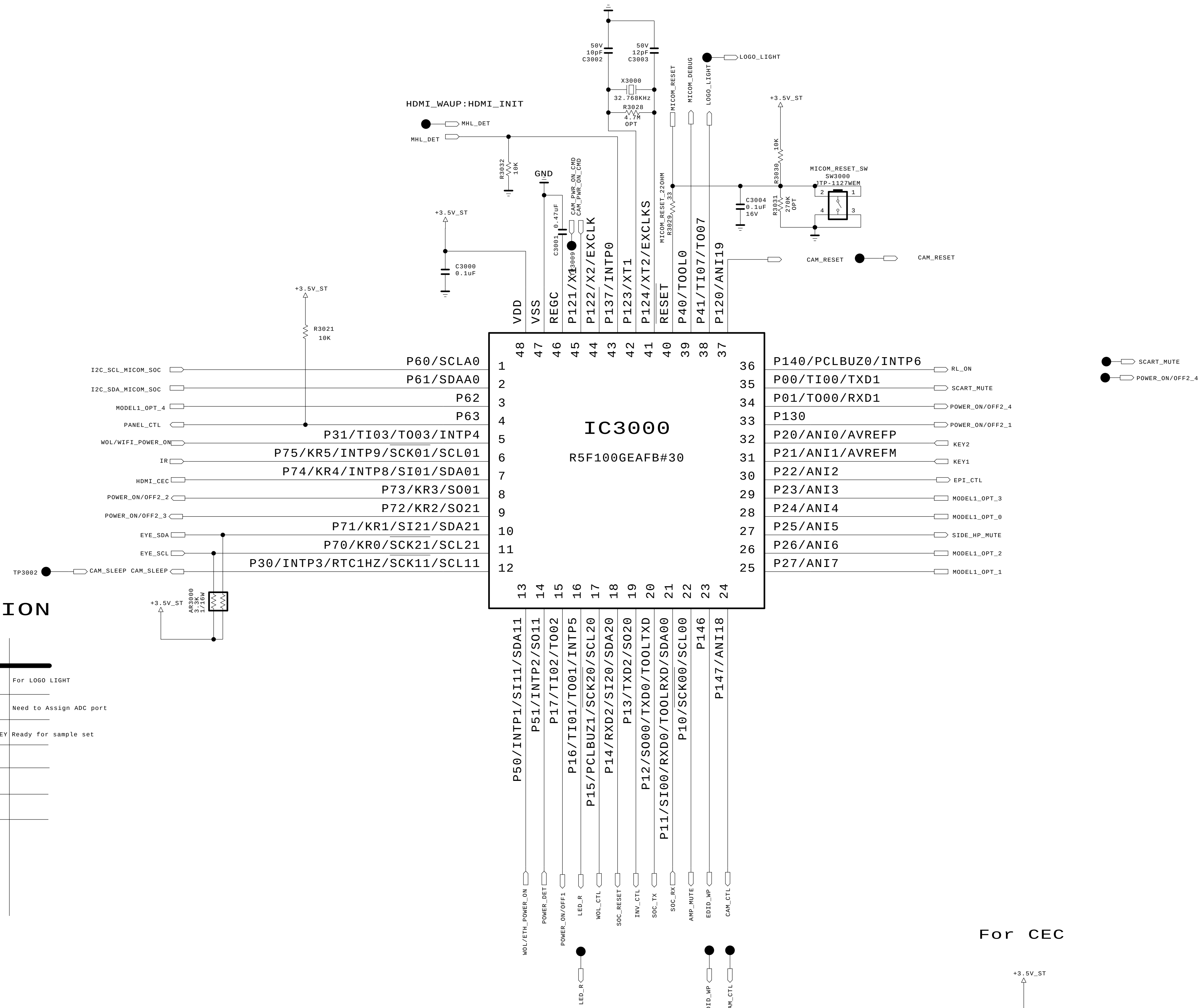
MODEL	MID_LG1311	DATE	2013.03.22
BLOCK	POWER	SHEET	8 / 31

Renesas MICOM



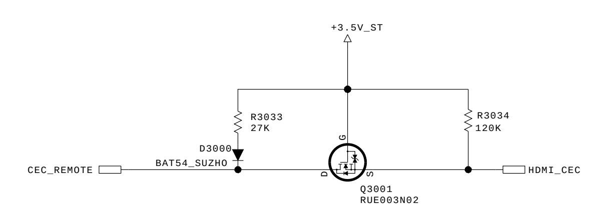






MICOM MODEL OPTION

	0	1	
MODEL_OPT_0	NON LOGO	LOGO	For LOGO LIGHT
MODEL_OPT_1	LCD	OLED/UHD	Need to Assign ADC port
MODEL_OPT_2	NC4_Local KEY_8KEY	NC5_Local KEY_5KEY	Ready for sample set
MODEL_OPT_3	M14	H13/H14	
MODEL_OPT_4	NON_GED	GED	



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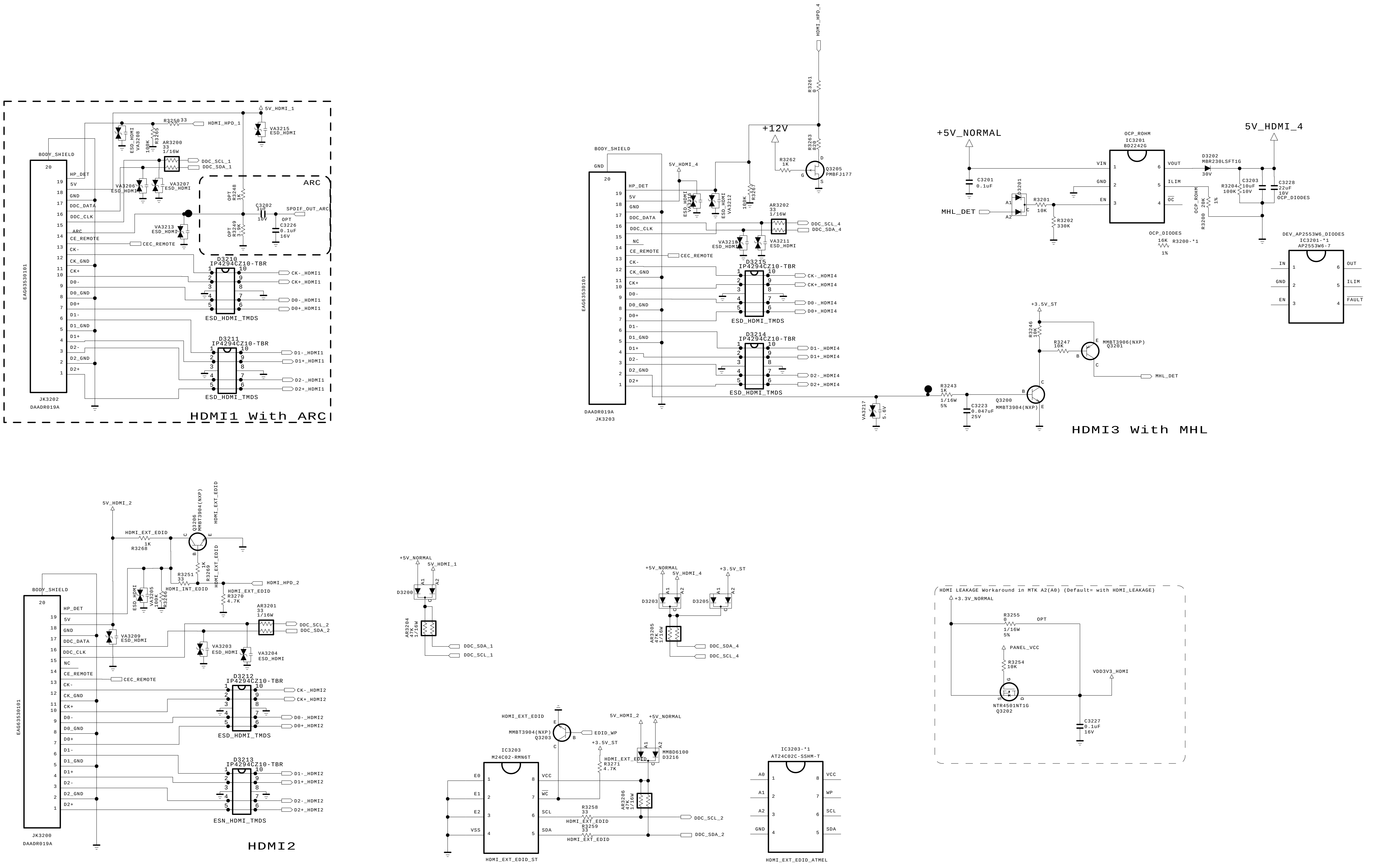
LG ELECTRONICS

MODEL	MID_LG1311	DATE	2013.03.22
BLOCK	MICOM	SHEET	9 / 31



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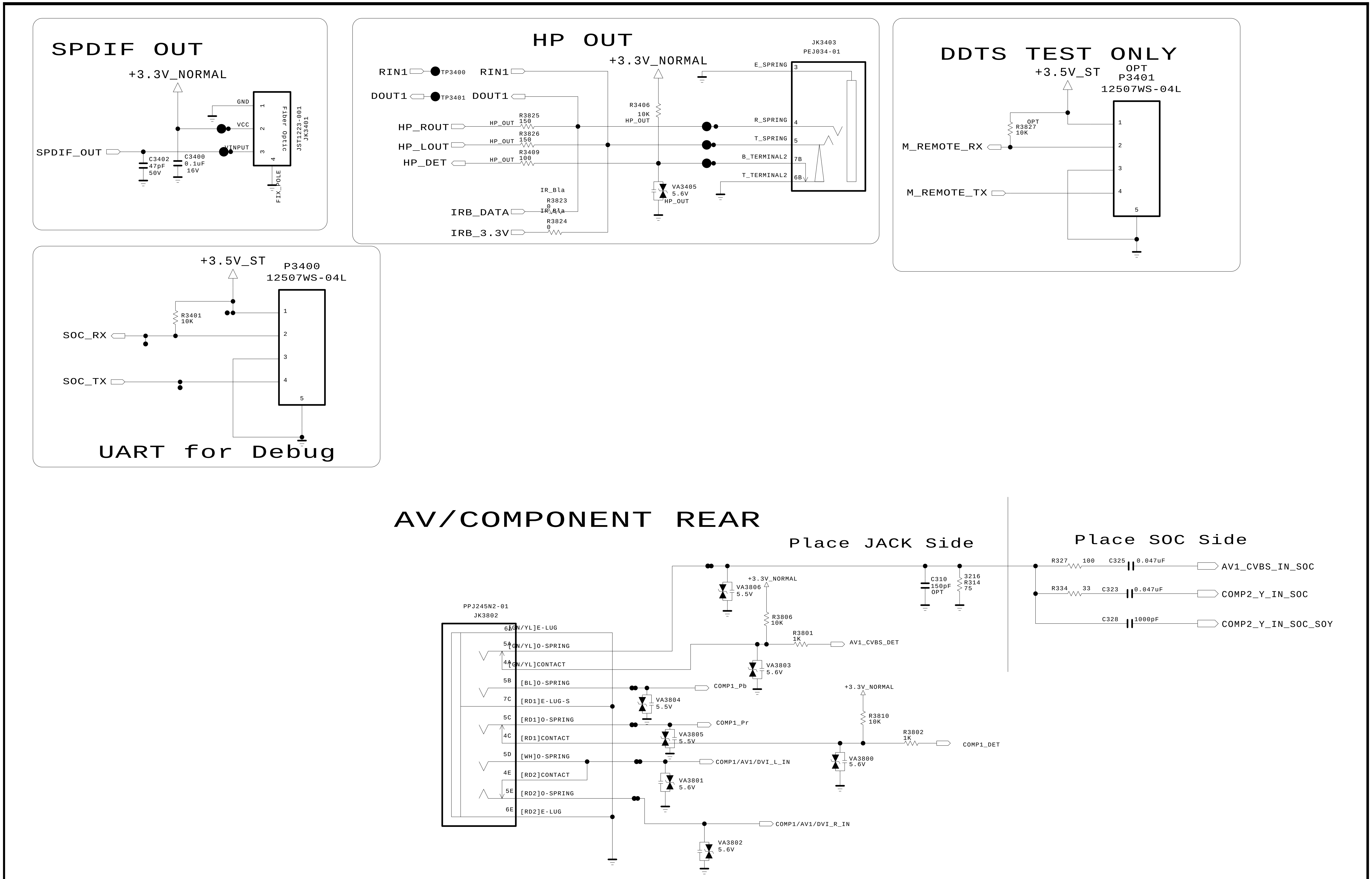
MODEL	MID_LG1311	DATE	2013.03.22
BLOCK	HDMI	SHEET	32



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MODEL	MID_LG1311	DATE	2013.04.03
BLOCK	AV JACK	SHEET	11 / 31

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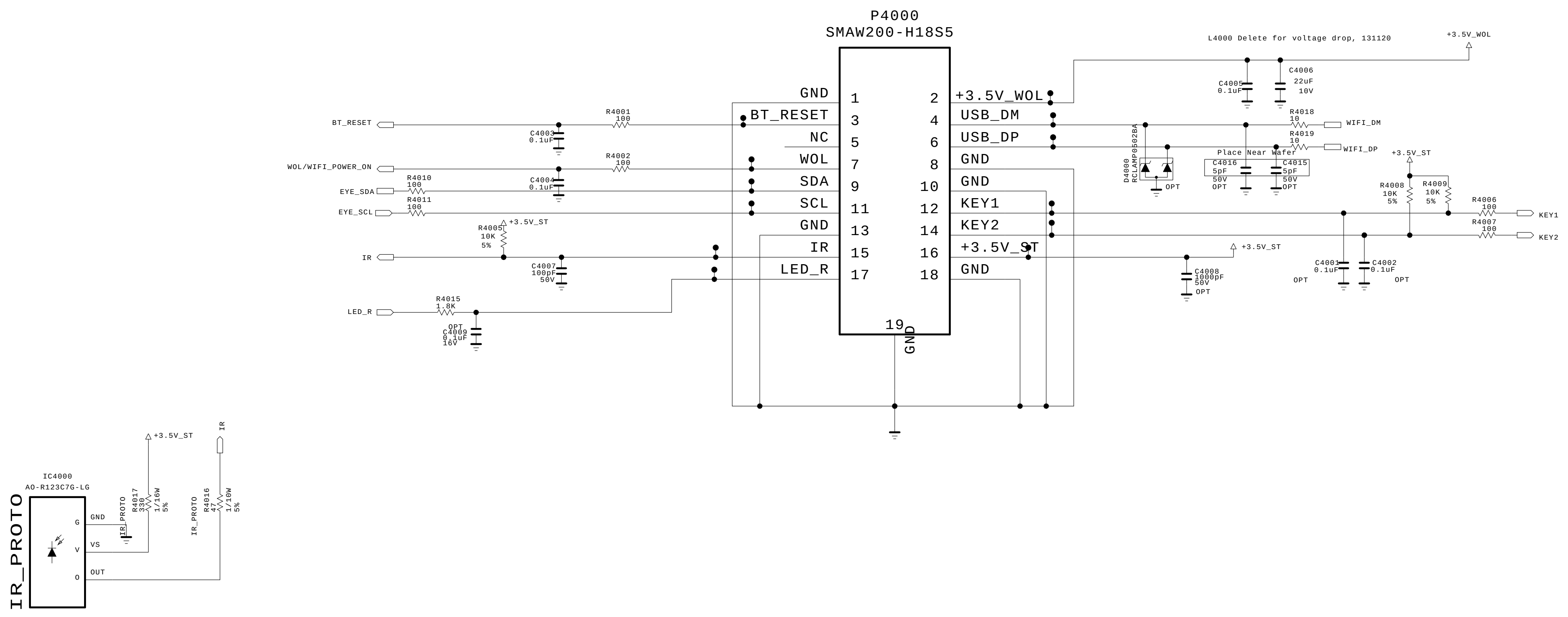

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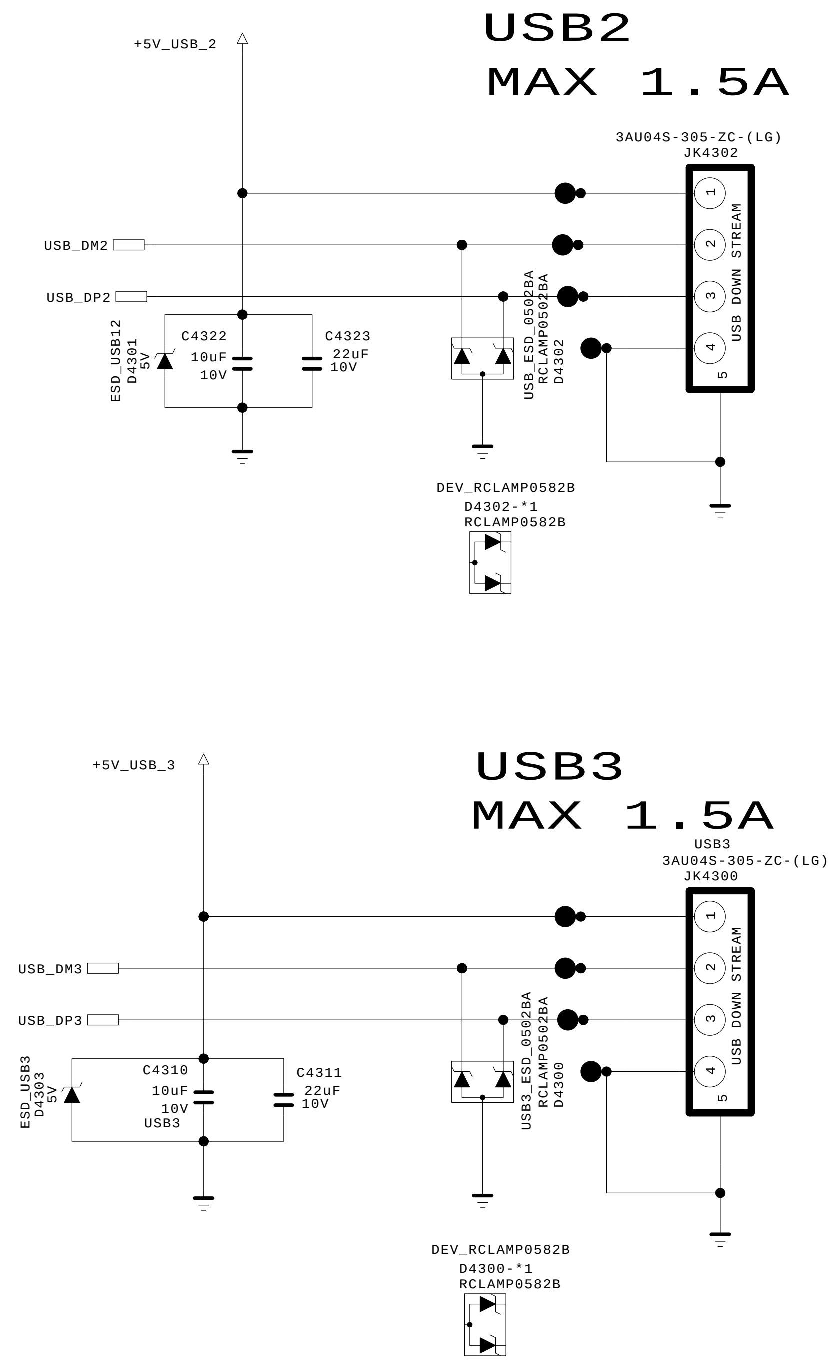
LGElectronics

LG ELECTRONICS

MODEL	MID_LG1311	DATE	2013.03.22
BLOCK	IR / KEY	SHEET	12 / 31



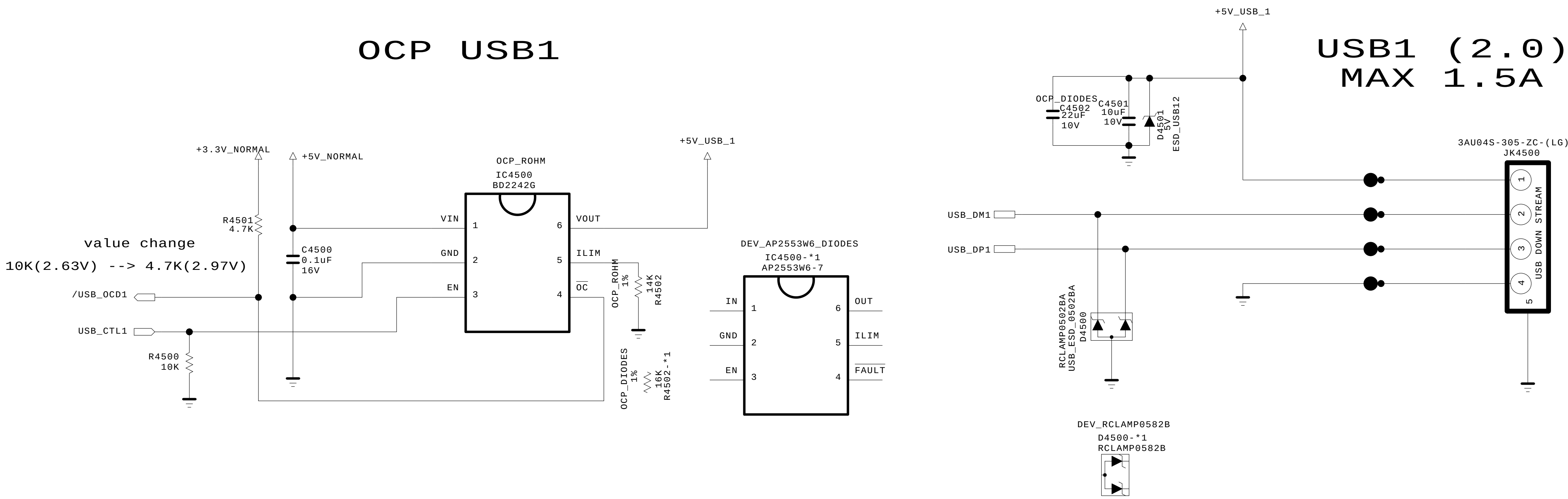
THE ⚠ SYMBOL MARK OF THIS SCHEMETIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR PROTECTION FROM X-RADIATION. FIRE AND ELECTRICAL SHOCK HAZARDS, WHEN SERVICING IF IS ESSENTIAL THAT ONLY MANUFACTURES SPECIFIED PARTS BE USED FOR THE CRITICAL COMPONENTS IN THE ⚠ SYMBOL MARK OF THE SCHEMETIC.

SECRET

LGElectronics

LG ELECTRONICS

MODEL	MID_LG1311	DATE	2013.04.03
BLOCK	USB 2 & 3	SHEET	1 /



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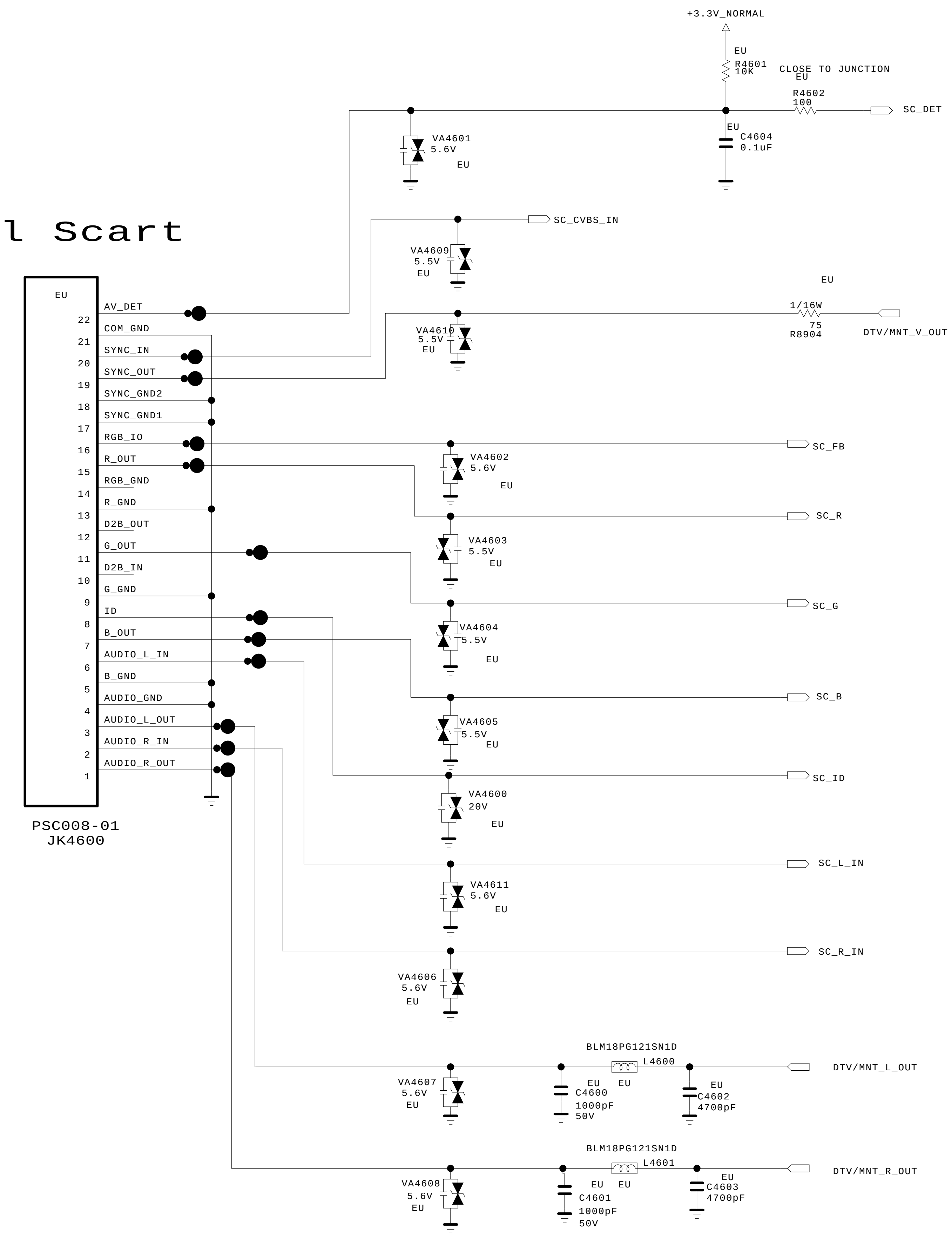
SECRET

LGElectronics

LG ELECTRONICS

MODEL	MID_LG1311	DATE	2013.04.03
BLOCK	USB 1(DVR)	SHEET	1 /

Full Scart



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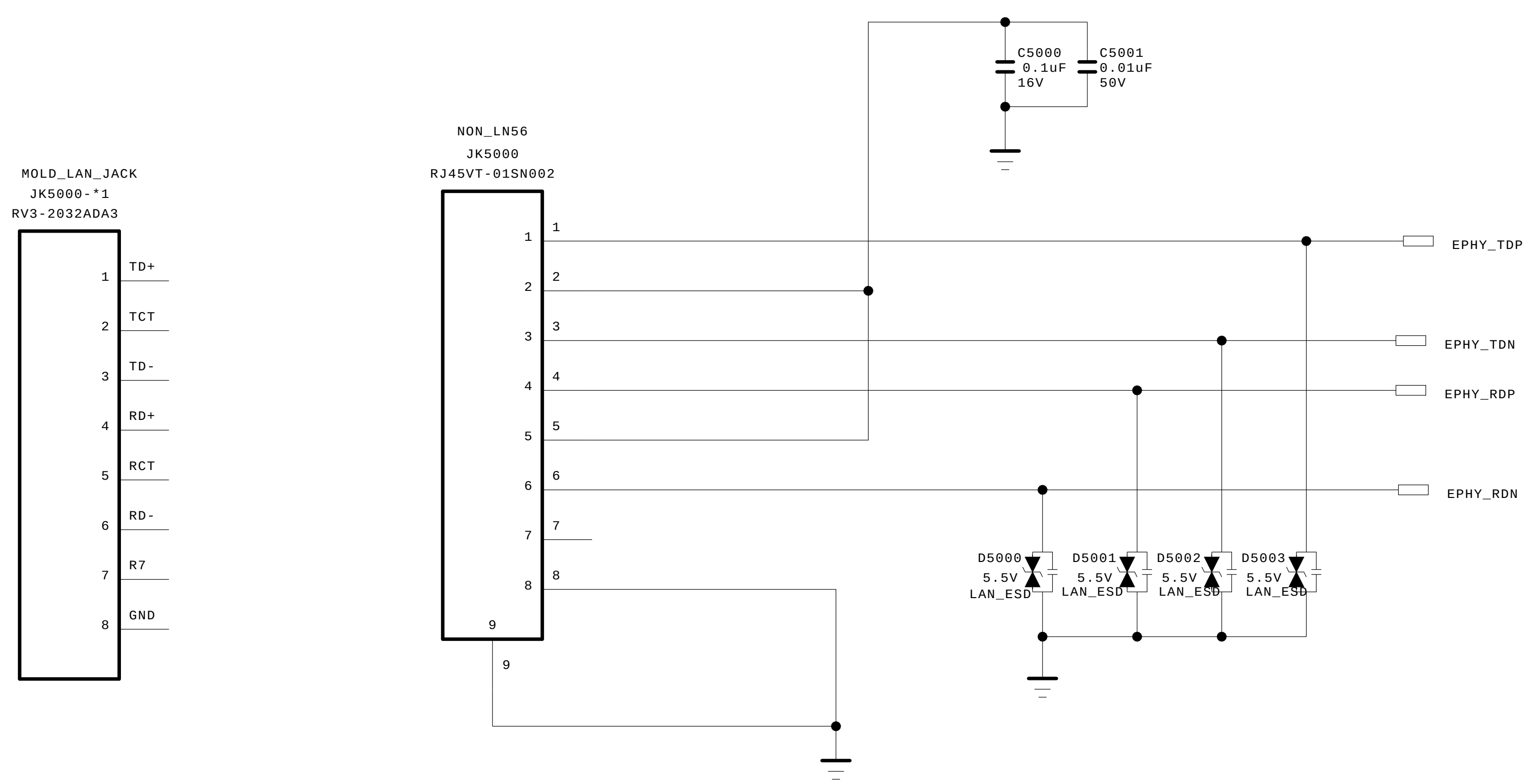
SECRET

LGElectronics

LG ELECTRONICS

MODEL		DATE	
BLOCK		SHEET	/

Ethernet Block



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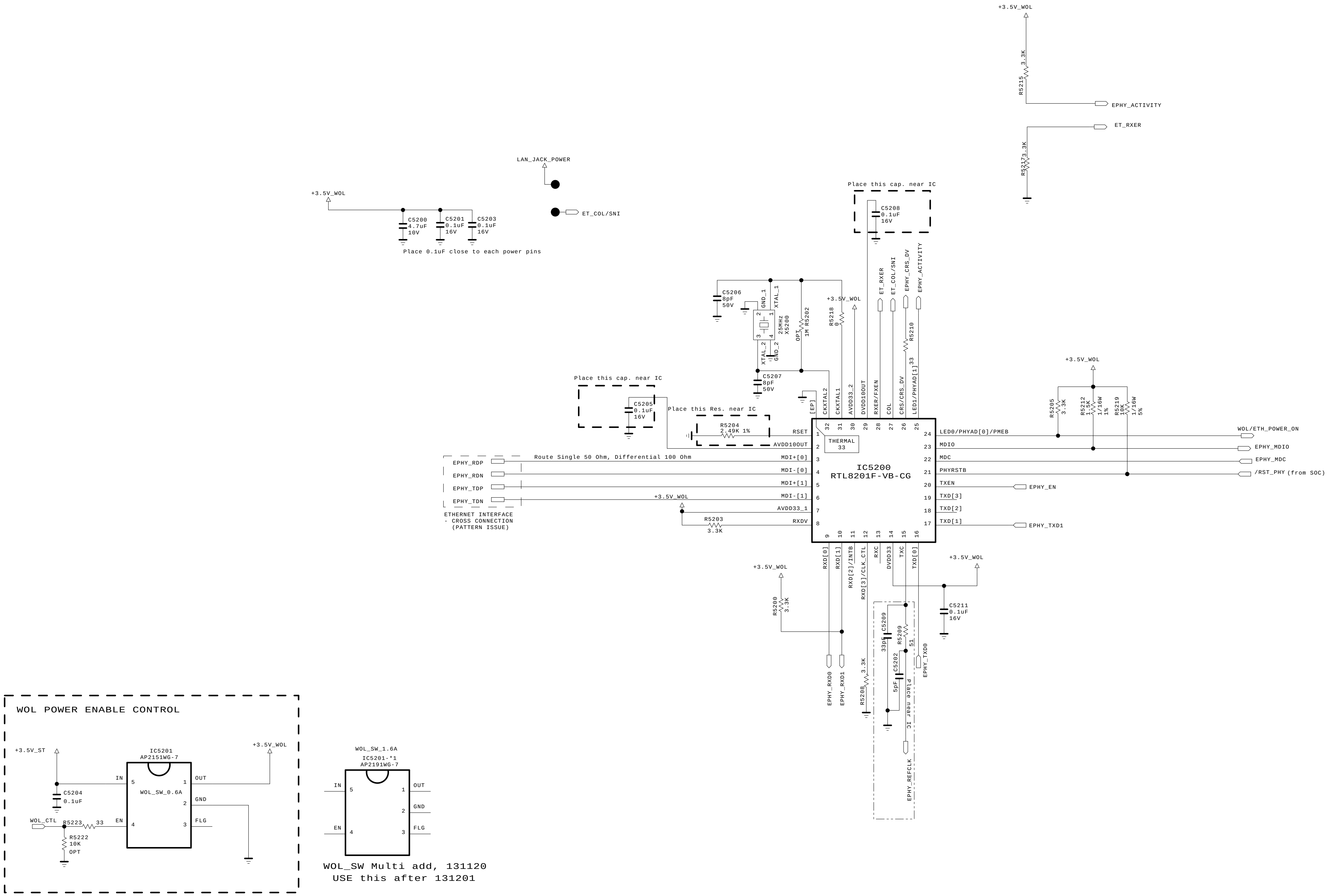
SECRET

LGElectronics

LG ELECTRONICS

MODEL		DATE	
BLOCK		SHEET	/

Ethernet Block



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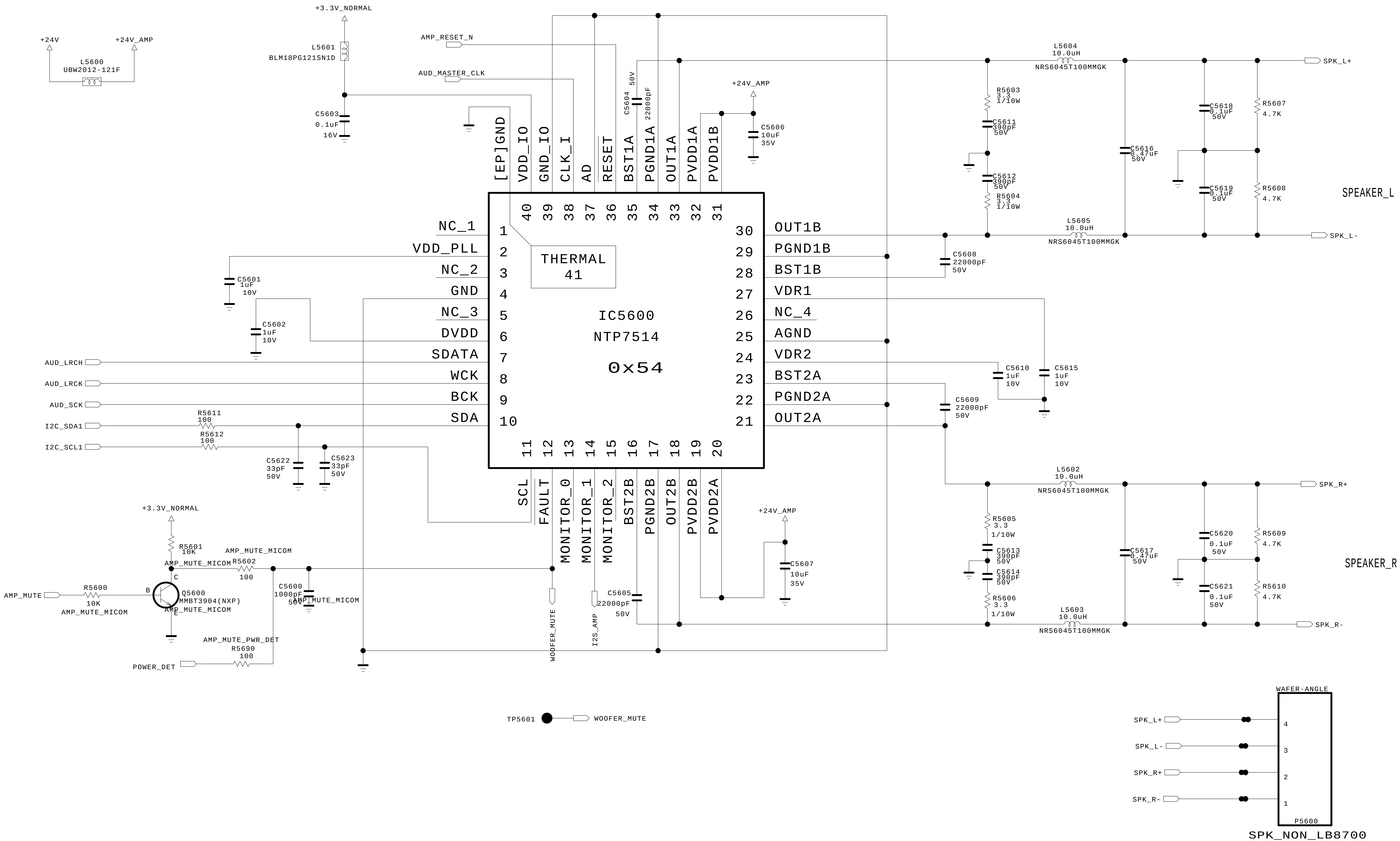
LG ELECTRONICS

BSD-NC4_H052-HD

MODEL		DATE	2012-09-12
BLOCK	ETHERNET	SHEET	/

AUDIO AMP(NTP7514)



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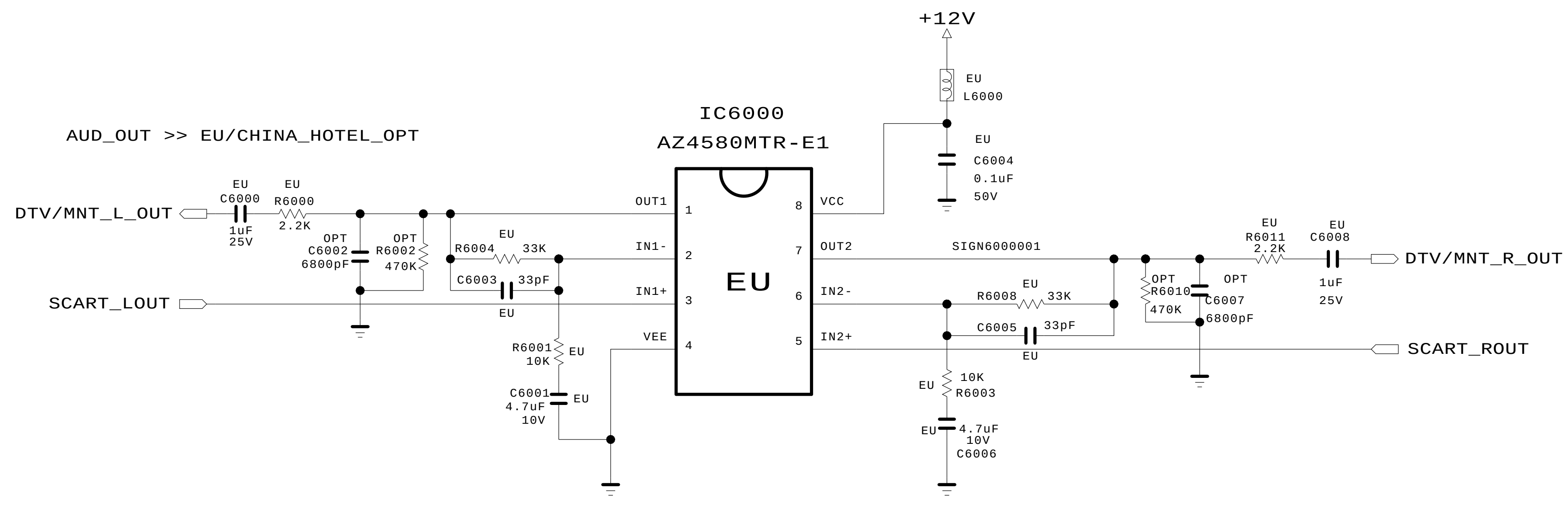
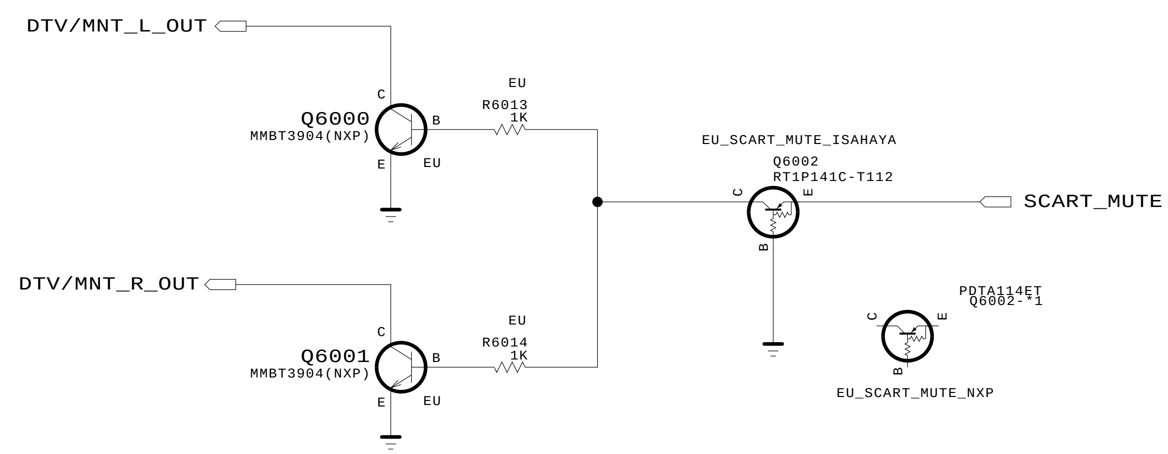
SECRET
LGElectronics

LG ELECTRONICS

MODEL	GP4_MT5369	DATE	2011.11.21
BLOCK	AUDIO[ST]	SHEET	58



[SCART AUDIO MUTE]



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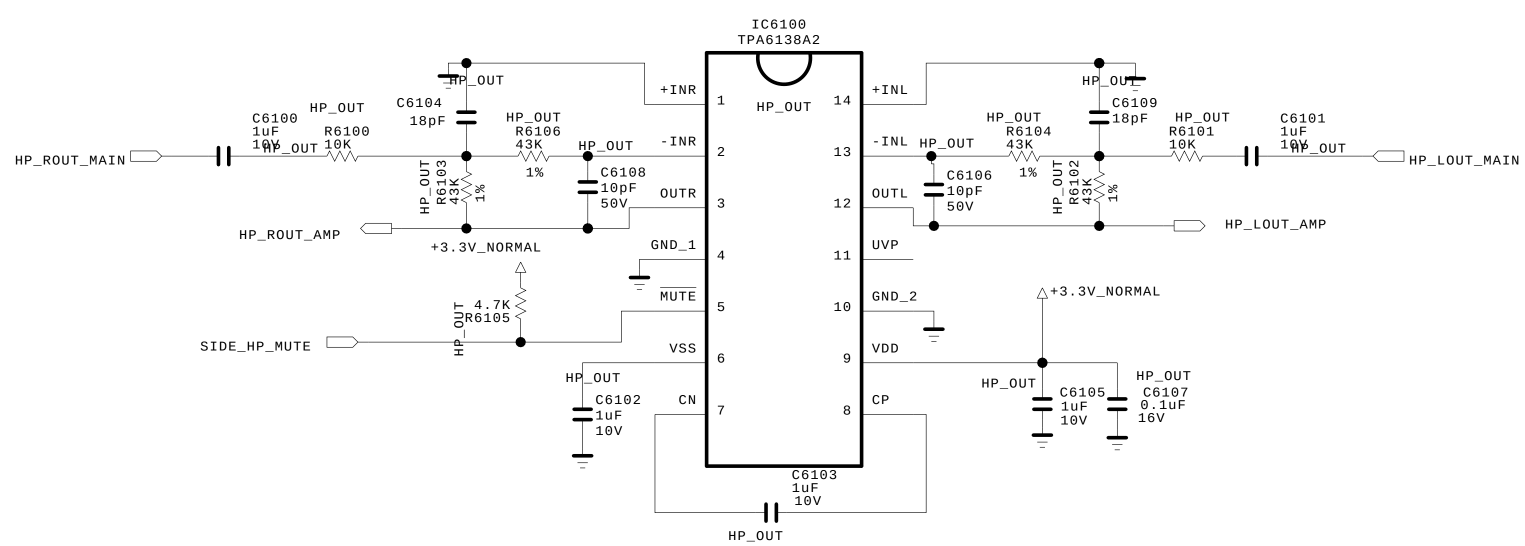
MODEL	MID_MAIN	DATE	2013.03.19
BLOCK	SCART AMP	SHEET	3 / 25

PAGE 20

EARPHONE AMP



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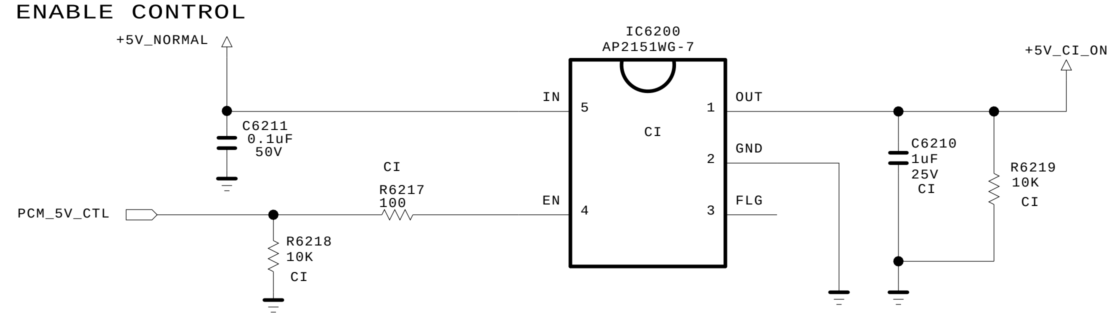
LG ELECTRONICS

MODEL	HEADPHONE AMP	DATE	2011.09.29
BLOCK		SHEET	61

CI POWER ENABLE CONTROL



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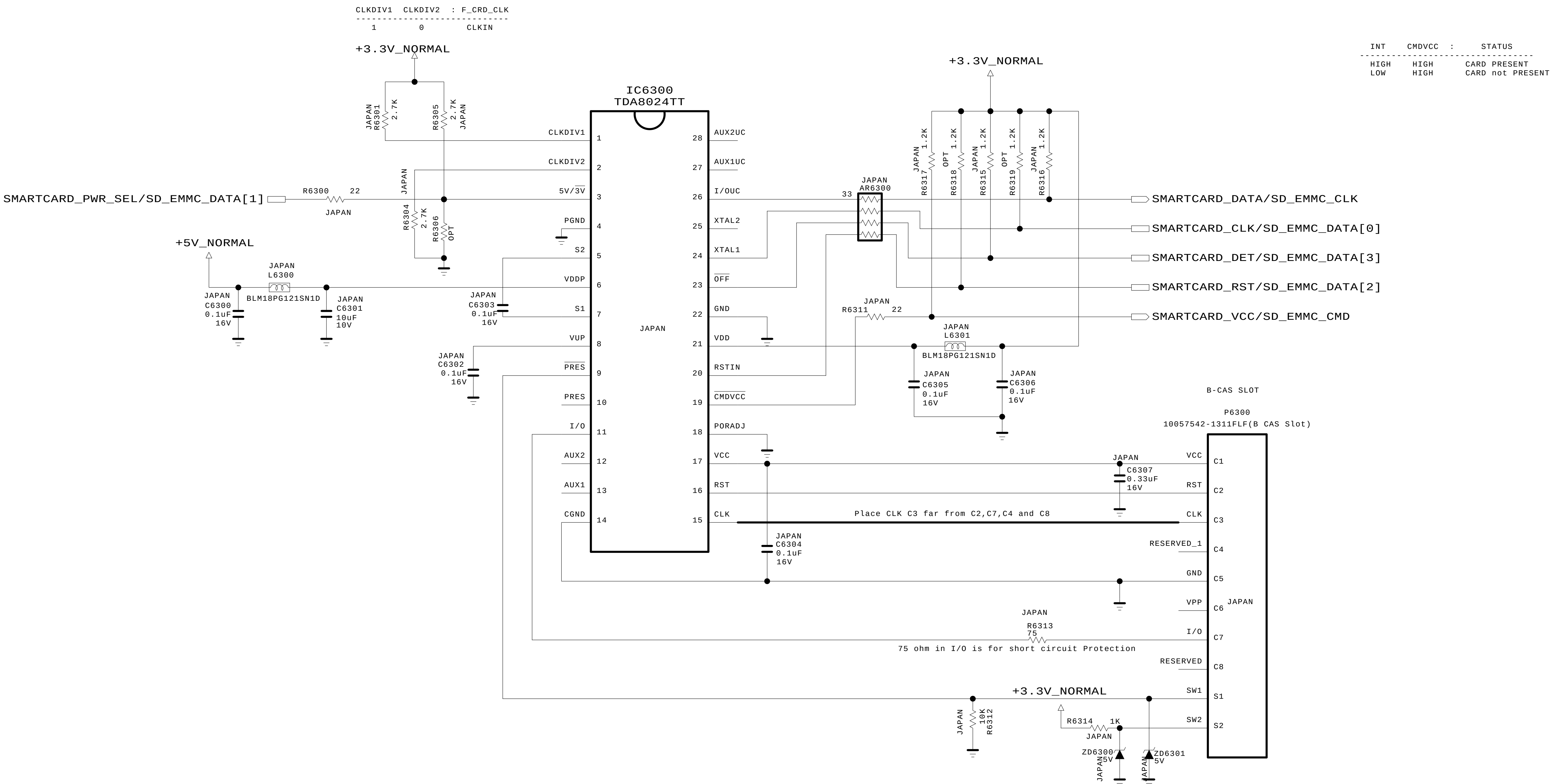
SECRET	LG ELECTRONICS
LGElectronics	

MODEL		DATE	
BLOCK		SHEET	/

B-CAS (SMART CARD) INTERFACE



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SECRET

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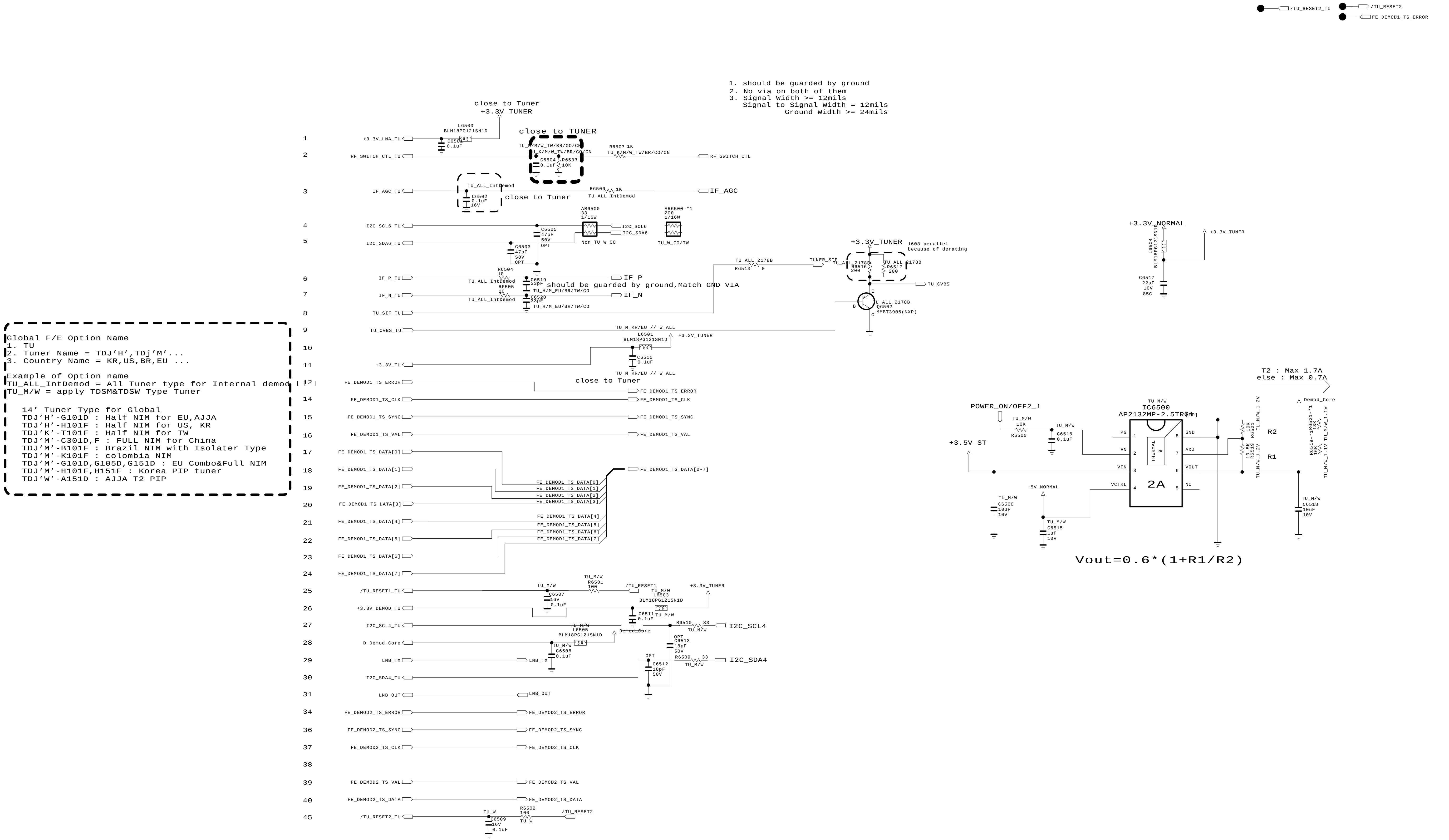
LG ELECTRONICS

MODEL	MID_LG1311	DATE	2013.04.03
BLOCK	B-CAS I/F	SHEET	/



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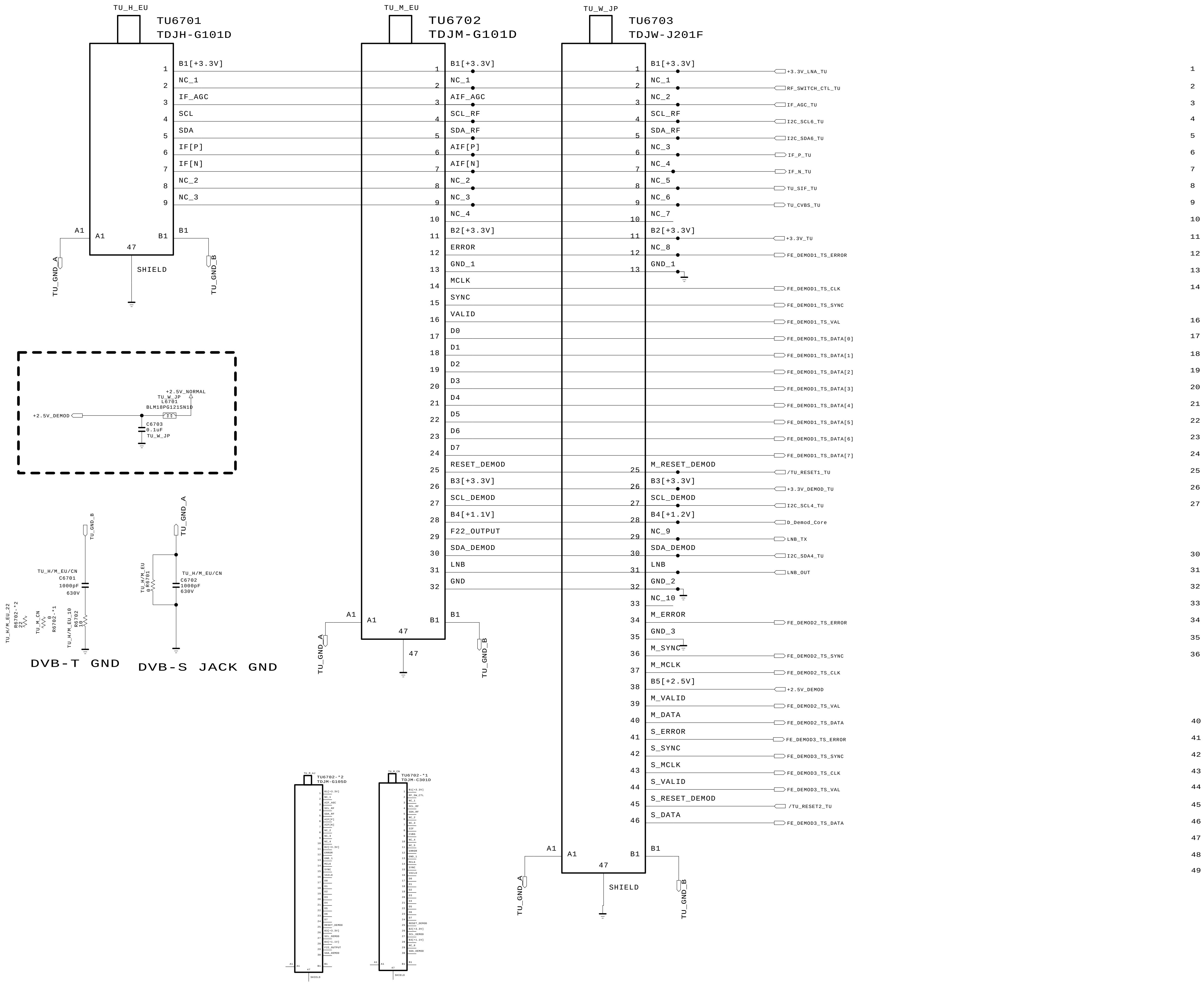
LG ELECTRONICS

MODEL	TUNER	DATE	2012.07.10
BLOCK		SHEET	65



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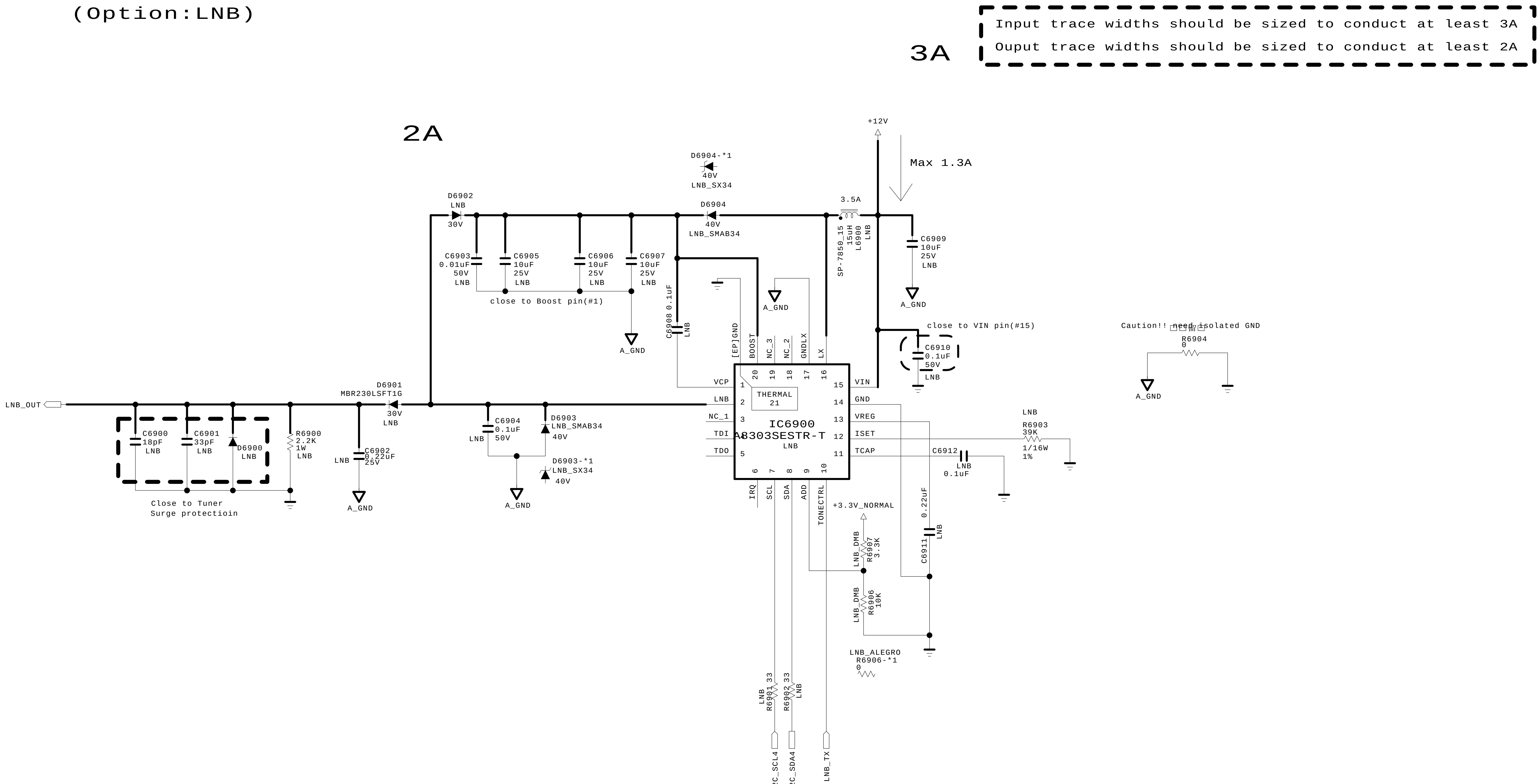
MODEL	TU_SYMBOL	DATE	2012.09.14
BLOCK		SHEET	/

DVB-S2 LNB Part Allegro

(Option:LNB)



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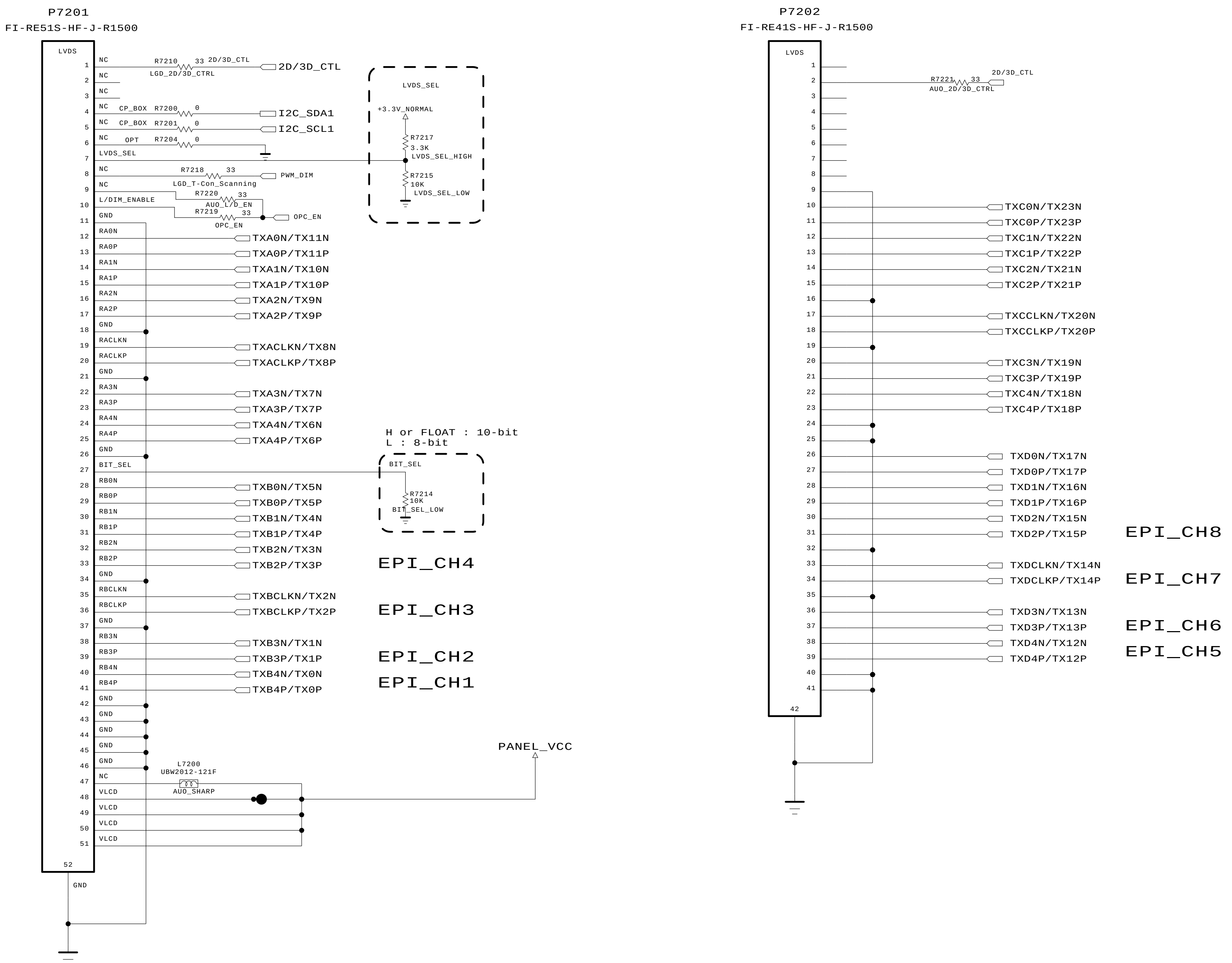
LG ELECTRONICS

MODEL	LNB	DATE	2012.03.08
BLOCK		SHEET	69

[51Pin LVDS OUTPUT Connector]

[41Pin LVDS OUTPUT Connector]



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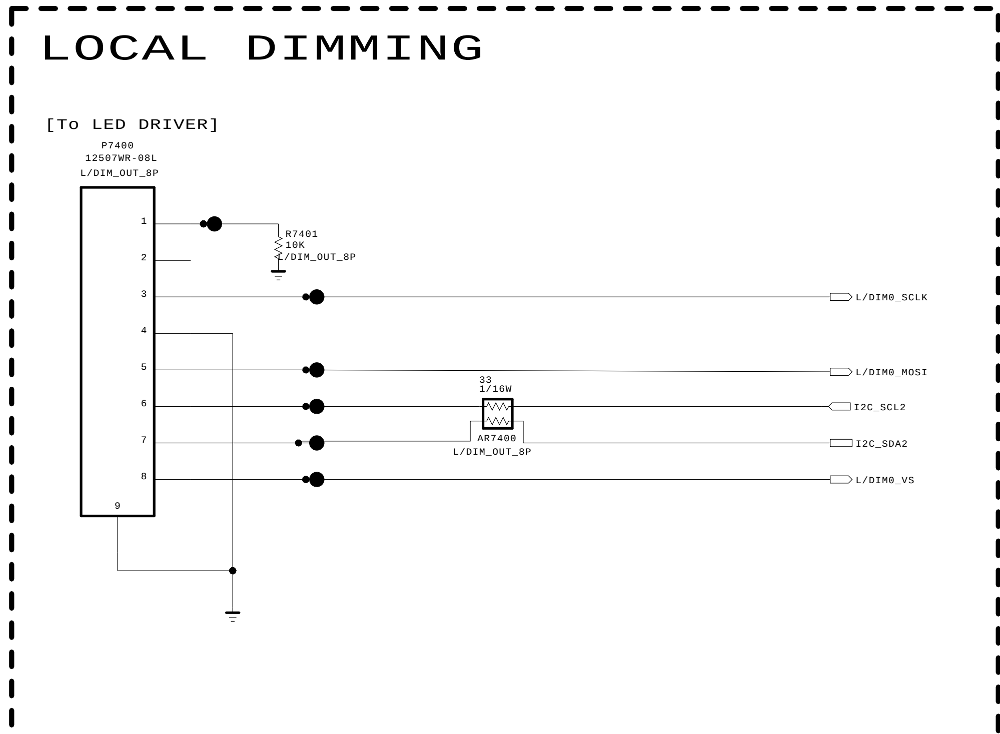
SECRET
LG Electronics

LG ELECTRONICS

BSD-NC4_H072-HD

MODEL	MID_LG1311	DATE	2013.04.03
BLOCK	LVDS INTERFACE	SHEET	/



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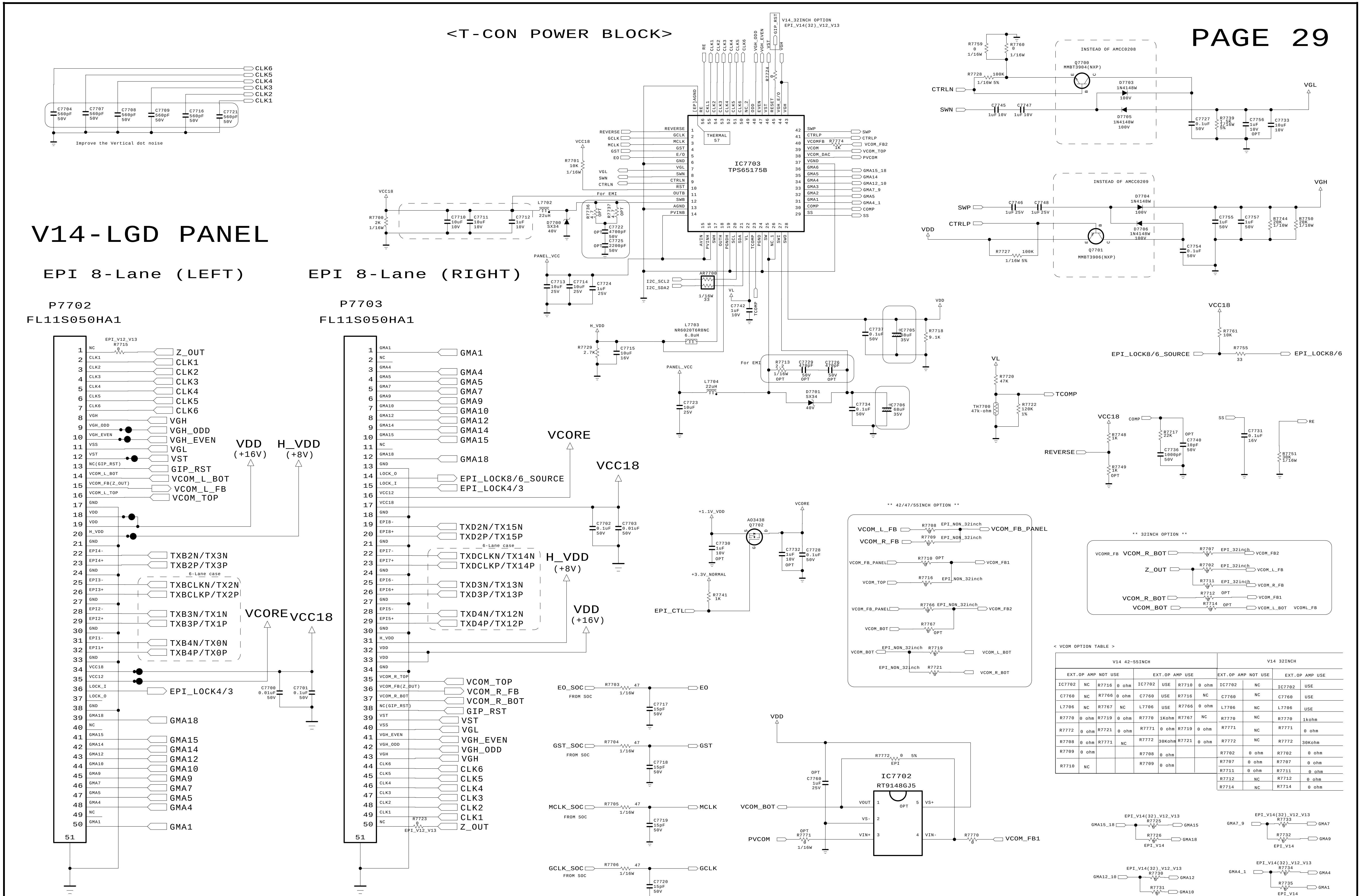
LG ELECTRONICS

BSD-NC4_H074-HD

MODEL	LOCAL DIMMING	DATE	2012.09.14
BLOCK		SHEET	/

<T-CON POWER BLOCK>

V14-LGD PANEL



< VCOM OPTION TABLE >

V14 42~55INCH								V14 32INCH			
EXT.OP AMP NOT USE				EXT.OP AMP USE				EXT.OP AMP NOT USE		EXT.OP AMP USE	
IC7702	NC	R7716	0 ohm	IC7702	USE	R7710	0 ohm	IC7702	NC	IC7702	USE
C7760	NC	R7766	0 ohm	C7760	USE	R7716	NC	C7760	NC	C7760	USE
L7706	NC	R7767	NC	L7706	USE	R7766	0 ohm	L7706	NC	L7706	USE
R7770	0 ohm	R7719	0 ohm	R7770	1Kohm	R7767	NC	R7770	NC	R7770	1kohm
R7772	0 ohm	R7721	0 ohm	R7771	0 ohm	R7719	0 ohm	R7771	NC	R7771	0 ohm
R7708	0 ohm	R7771	NC	R7772	30Kohm	R7721	0 ohm	R7772	NC	R7772	30Kohm
R7709	0 ohm			R7708	0 ohm			R7702	0 ohm	R7702	0 ohm
R7710	NC			R7709	0 ohm			R7707	0 ohm	R7707	0 ohm
								R7711	0 ohm	R7711	0 ohm
								R7712	NC	R7712	0 ohm
								R7714	NC	R7714	0 ohm

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29 31

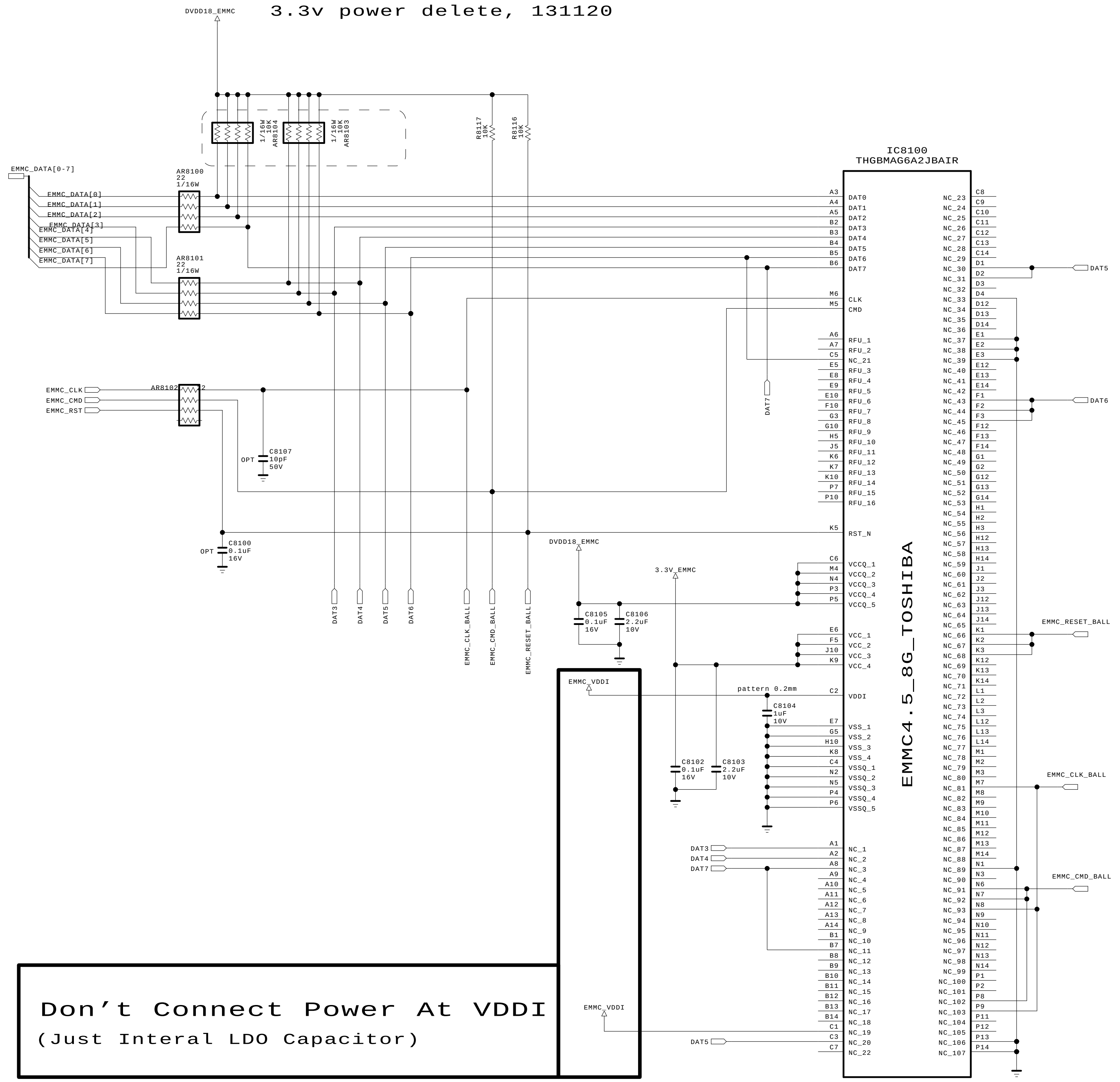
MODEL	MID_LG1311	DATE	2013.04.03
BLOCK	T-Con	SHEET	77

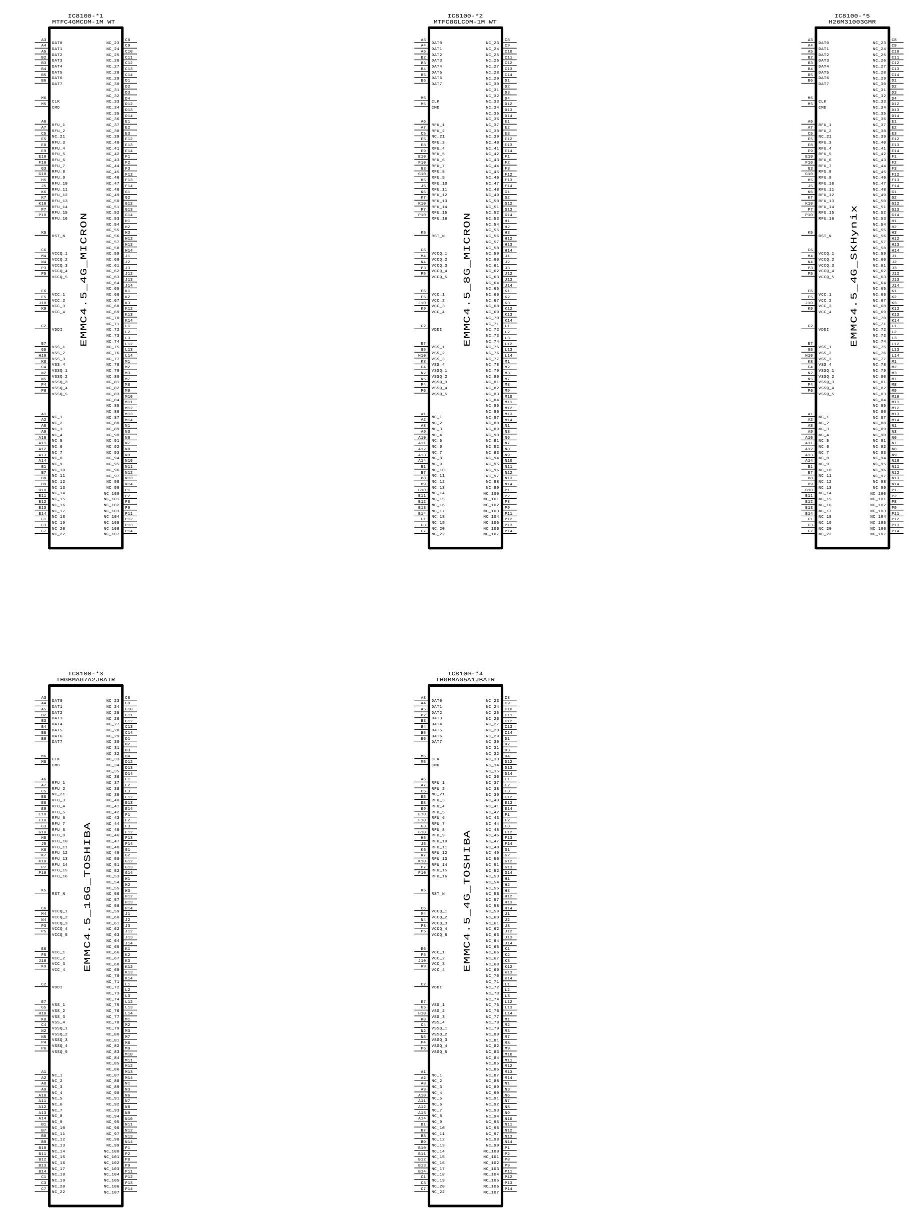
eMMC I/F

* A0 / A1 : Use EMMC_4.41

* B0 : Use EMMC_4.5

(130923_Jihwan Hyun)





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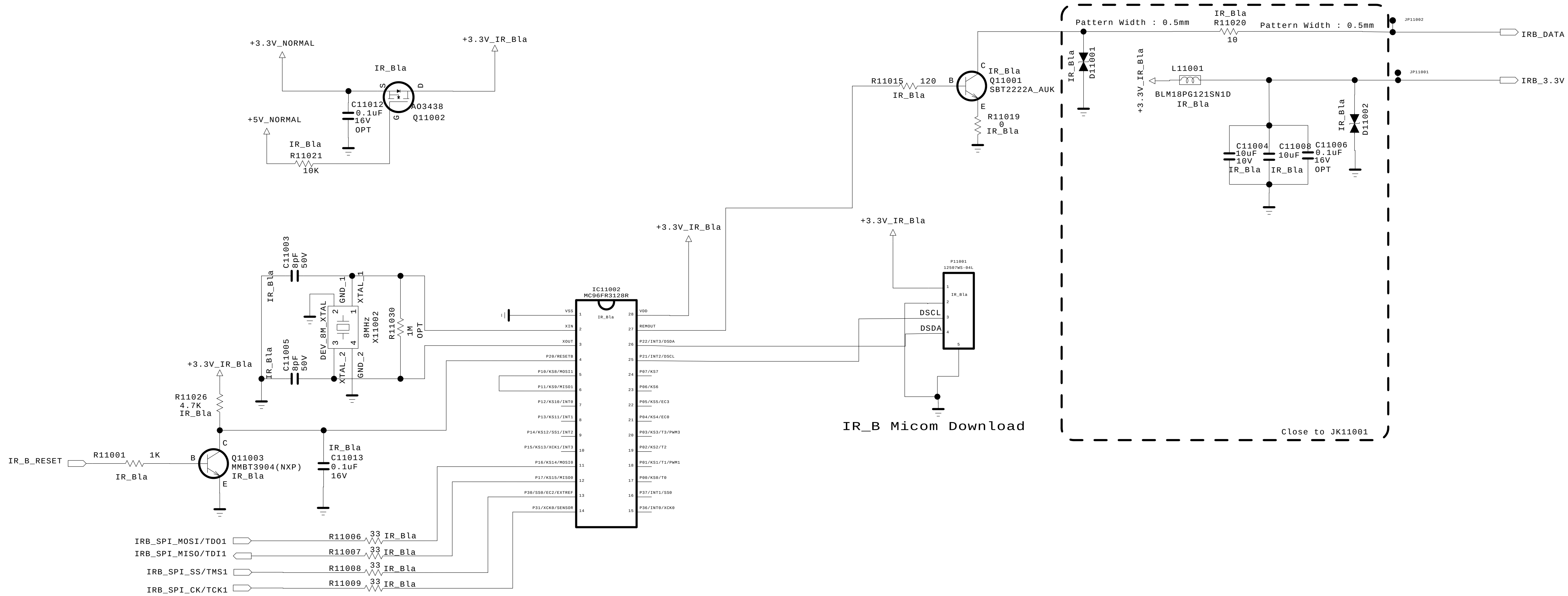
LG Electronics

LG ELECTRONICS

MODEL	eMMC	DATE	11.09.29
BLOCK		SHEET	81

IR BLASTER



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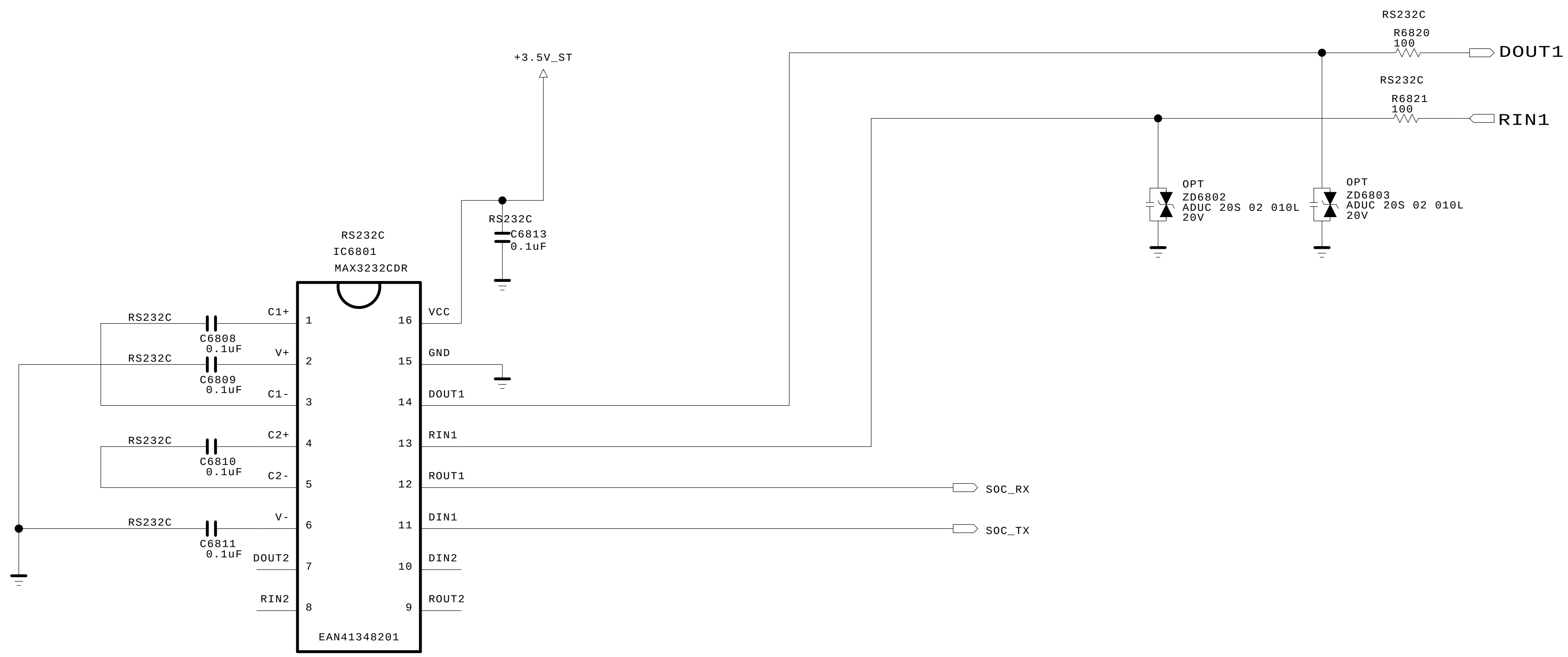
MODEL	MID_LG1311	DATE	2013.04.02
BLOCK	IR Blaster/Boost	SHEET	110 /

RS-232C Control INTERFACE



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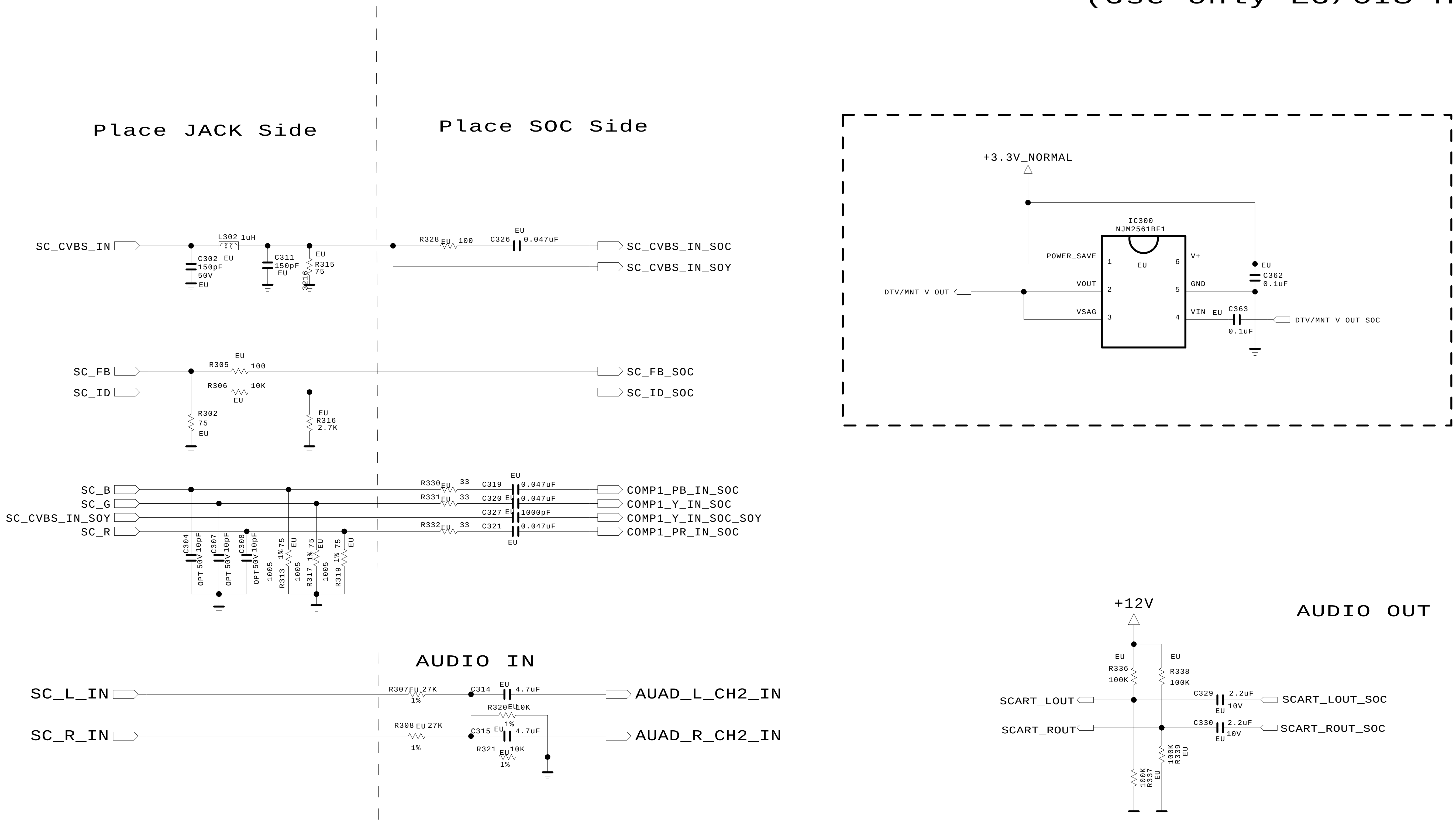
MODEL		DATE	
BLOCK		SHEET	/

PLACE AT JACK SIDE

SCART SIGNAL
(Use only EU/CIS Model)



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LGElectronics

LG ELECTRONICS

MODEL		DATE	
BLOCK		SHEET	/

LG

Life's Good

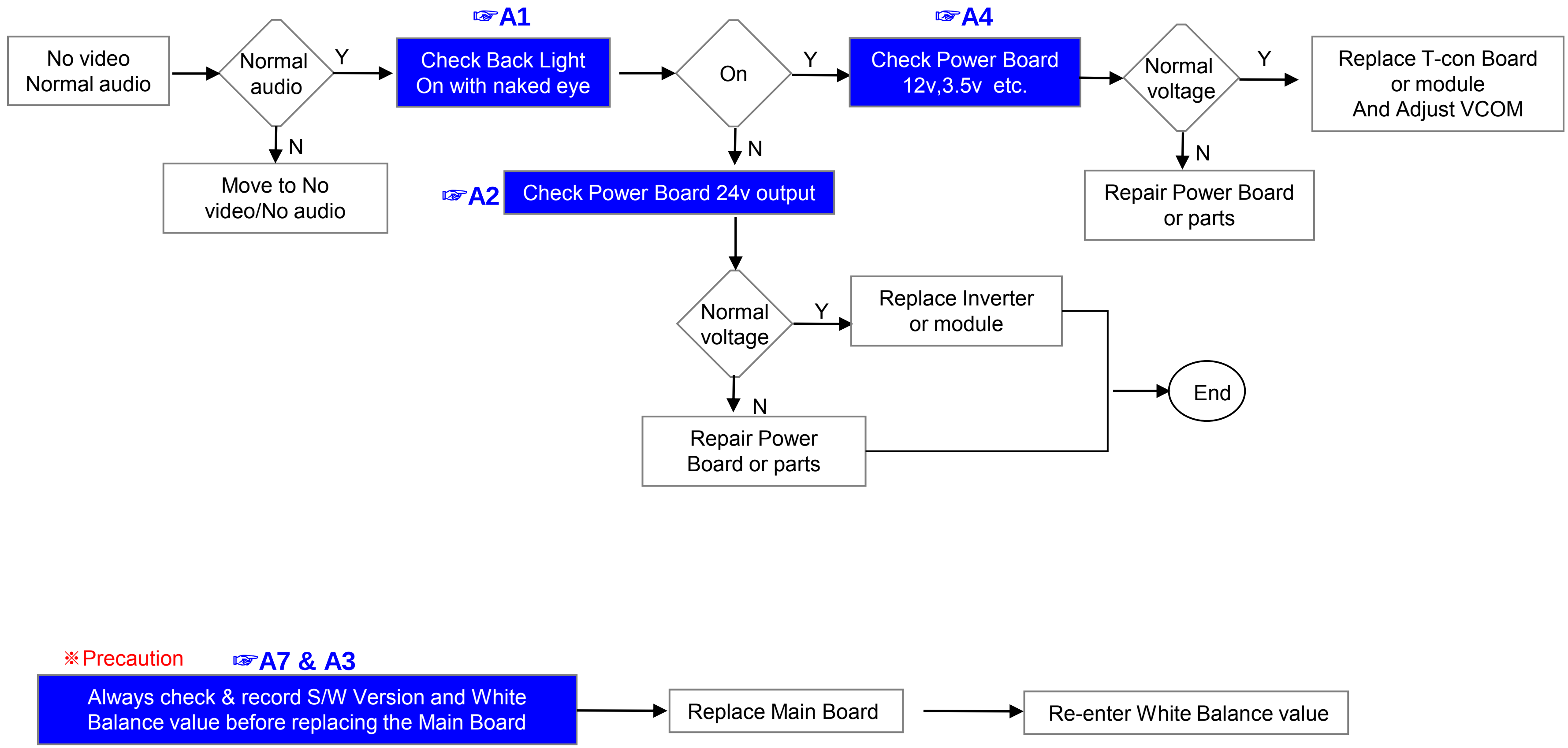
M14 Trouble Shooting Guide

Contents of LCD TV Standard Repair Process

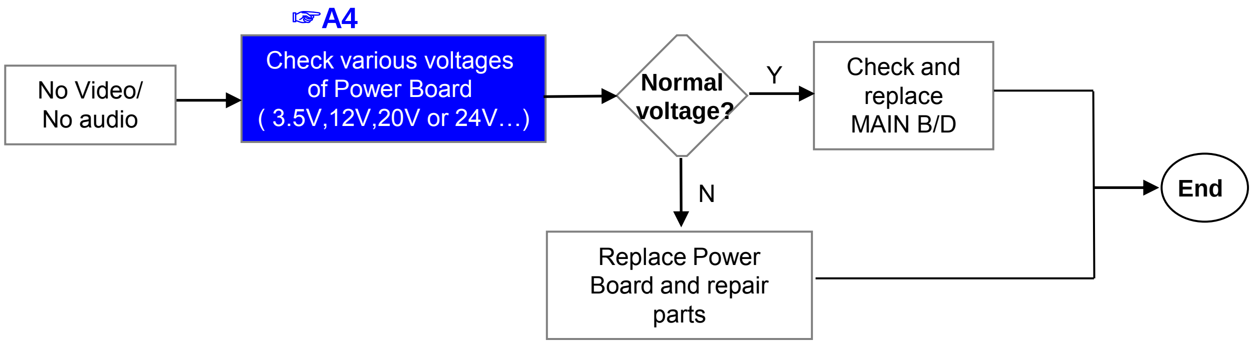
First of all, Check whether there is SVC Bulletin in GCSC System for these model.

LCD TV	Error symptom	A. Video error	Established date	2014.01.20	
		No video/ Normal audio	Revised date		1/13

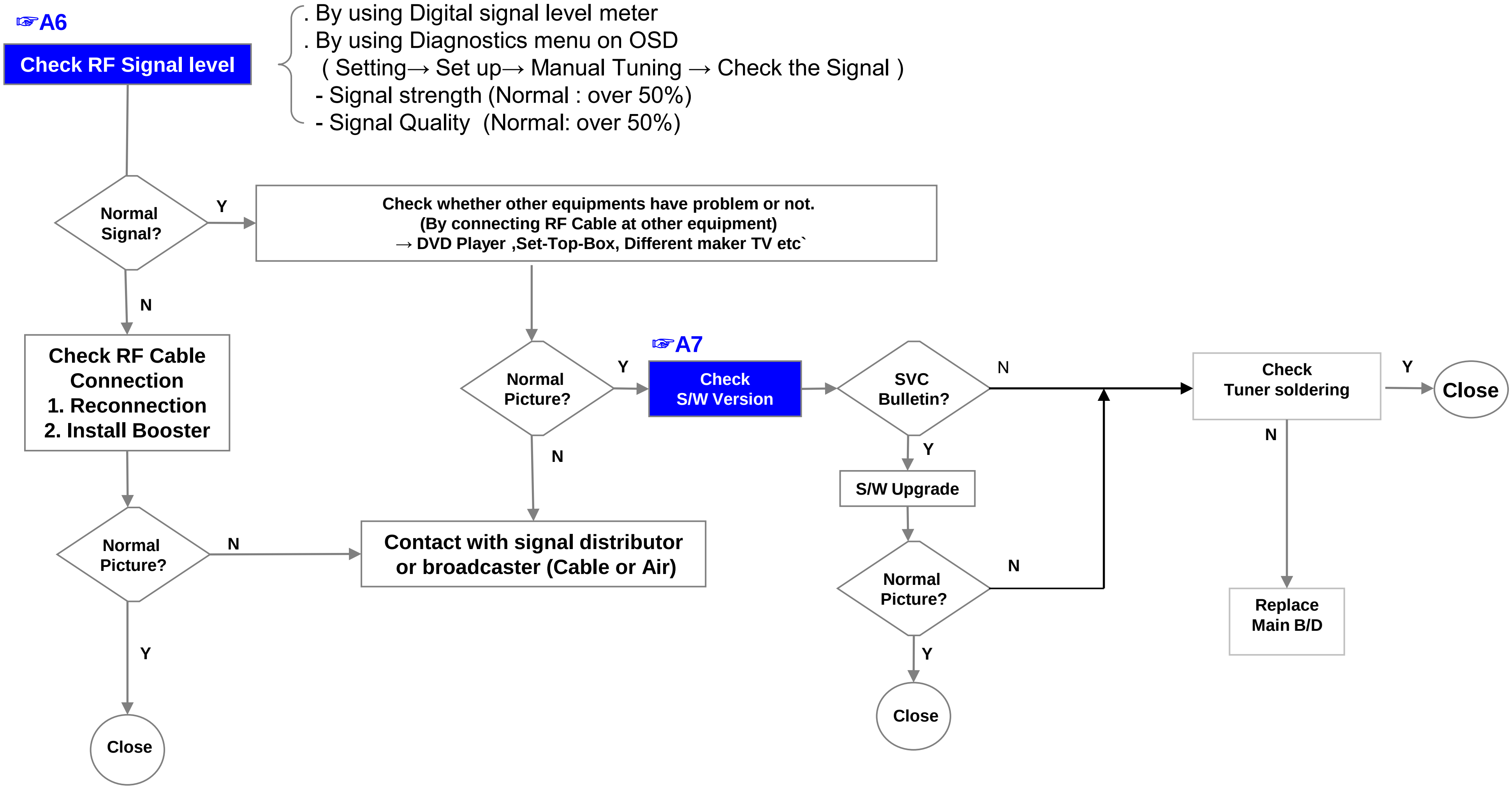
First of all, Check whether all of cables between board is inserted properly or not.
(Main B/D↔ Power B/D, EPI Cable, Speaker Cable, IR B/D Cable,,,)



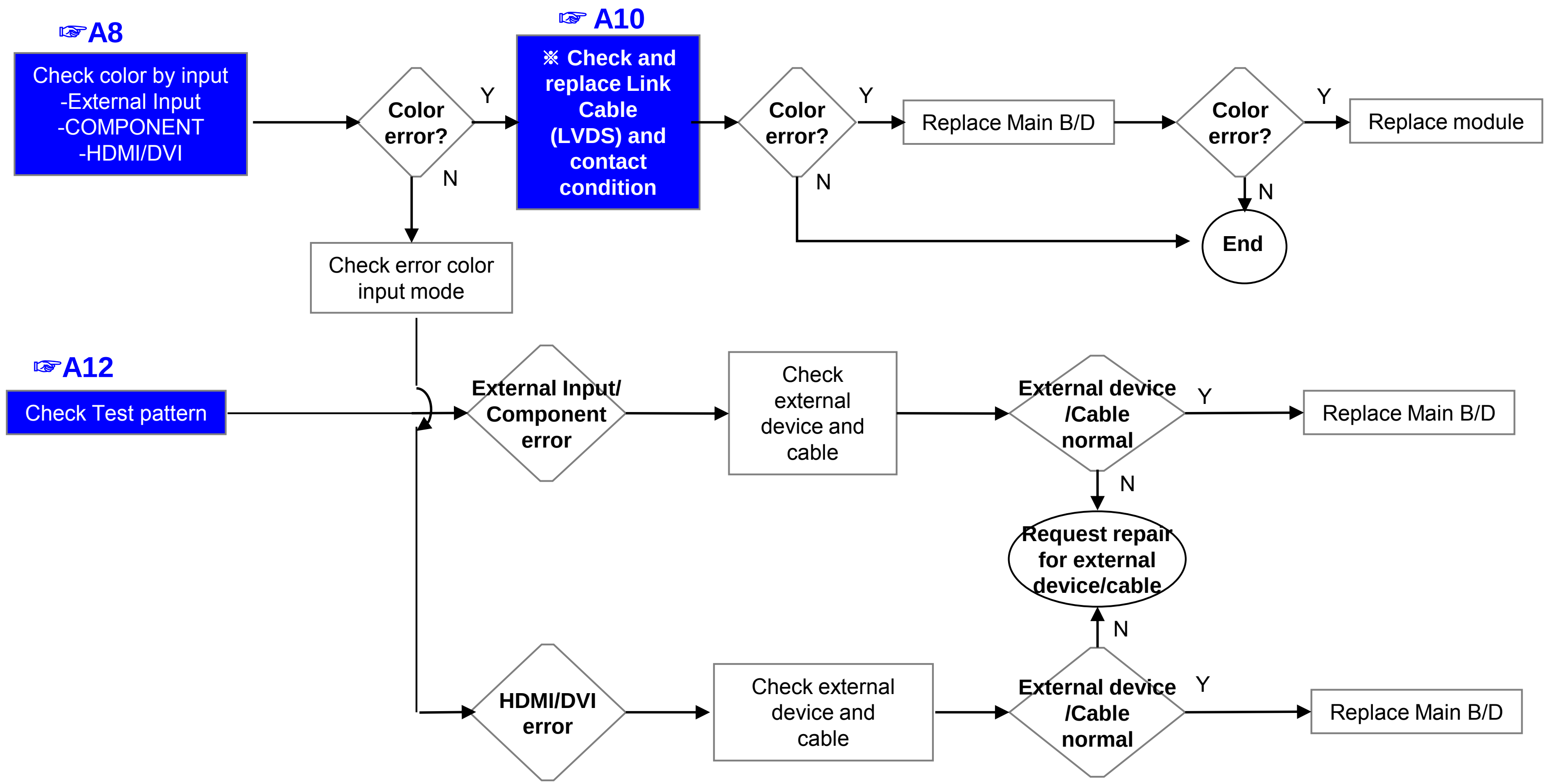
LCD TV	Error symptom	A. Video error	Established date	2014.01.20	
		No video/ No audio	Revised date		2/13



LCD TV	Error symptom	A. Picture Problem	Established date	2014.01.20	
		Picture broken/ Freezing	Revised date		3/13

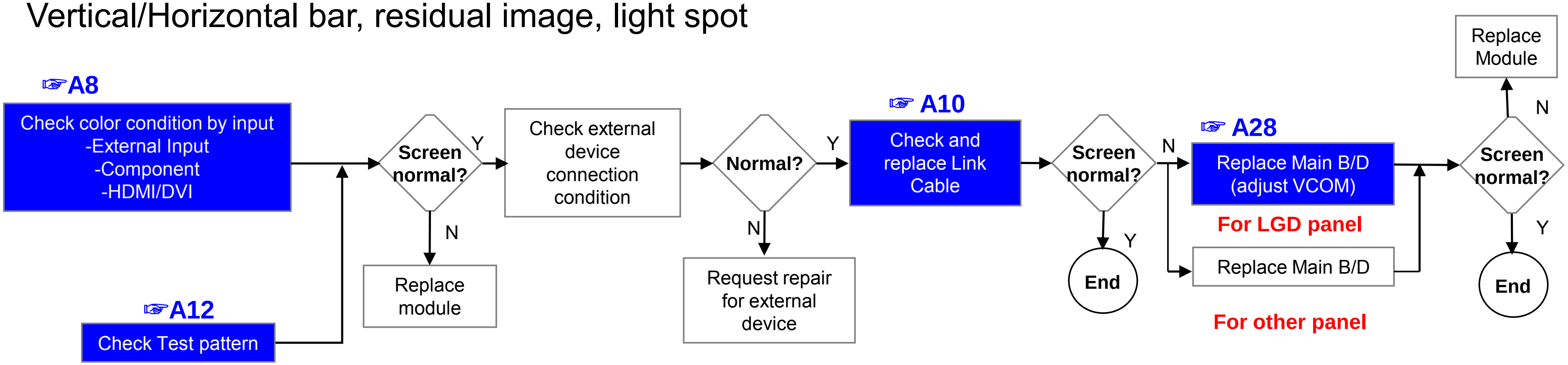


LCD TV	Error symptom	A. Video error	Established date	2014.01.20	
		Color error	Revised date		4/13

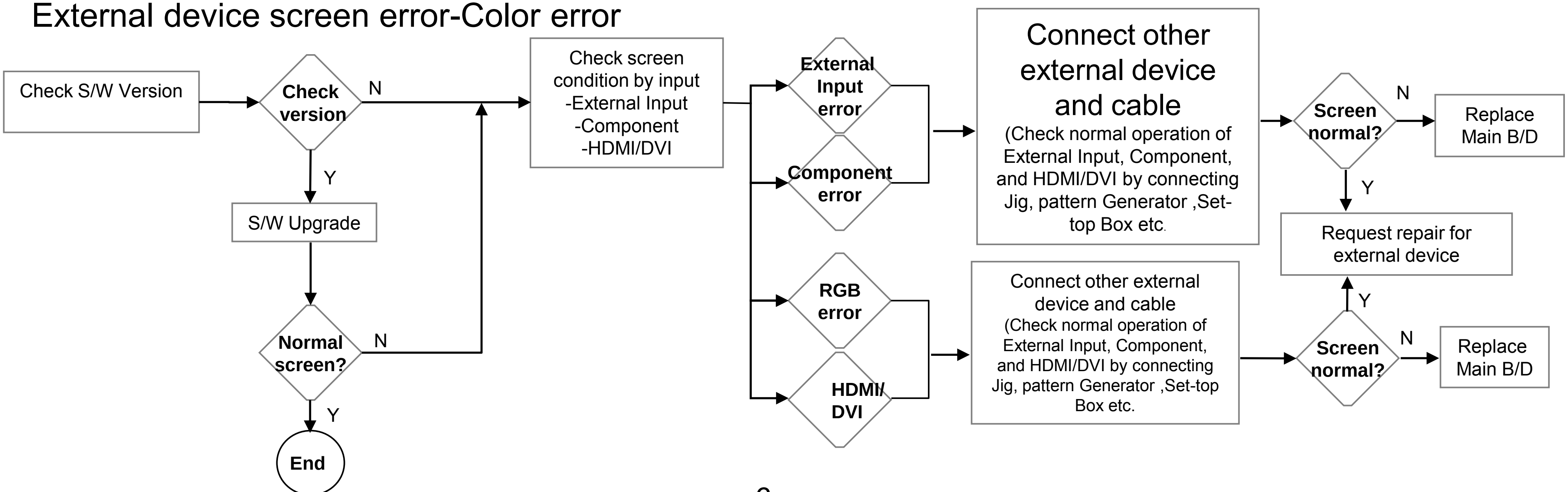


LCD TV	Error symptom	A. Video error	Established date	2014.01.20	
		Vertical / Horizontal bar, residual image, light spot, external device color error	Revised date		5/13

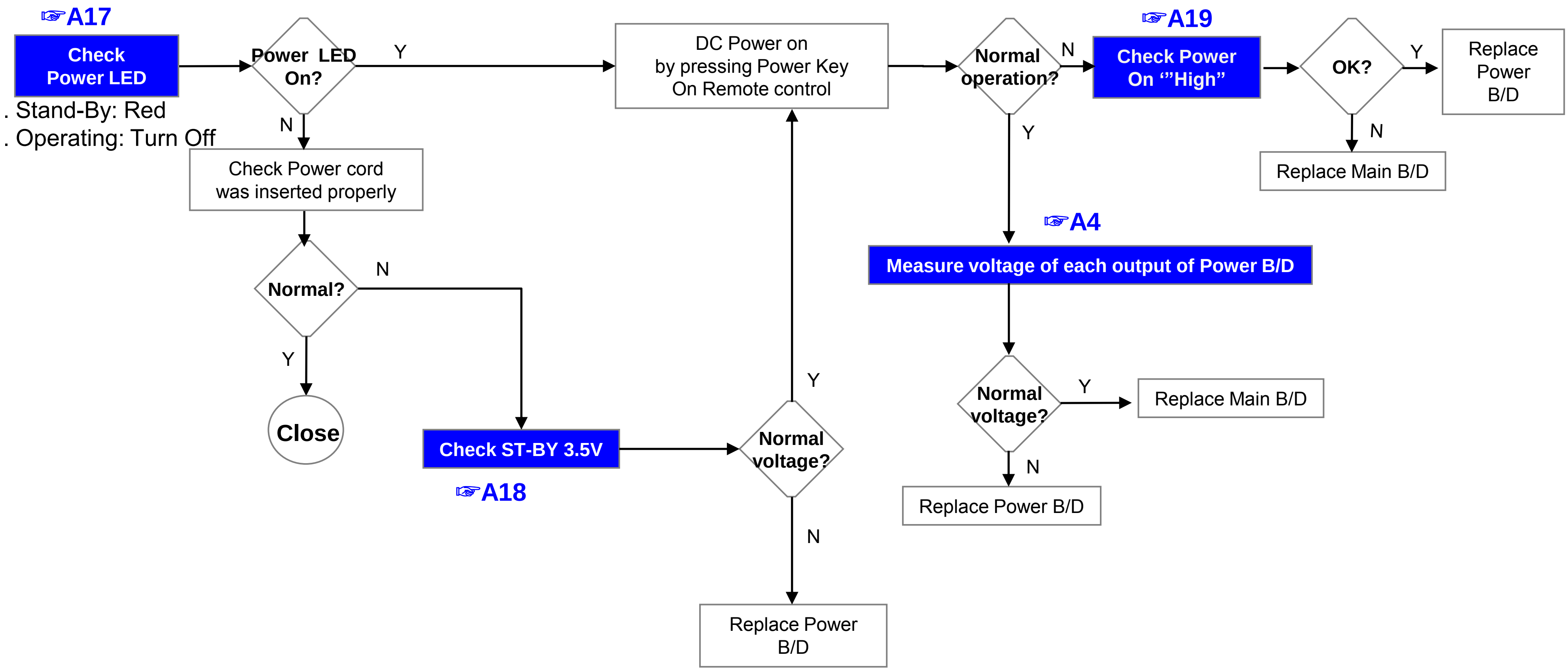
Vertical/Horizontal bar, residual image, light spot



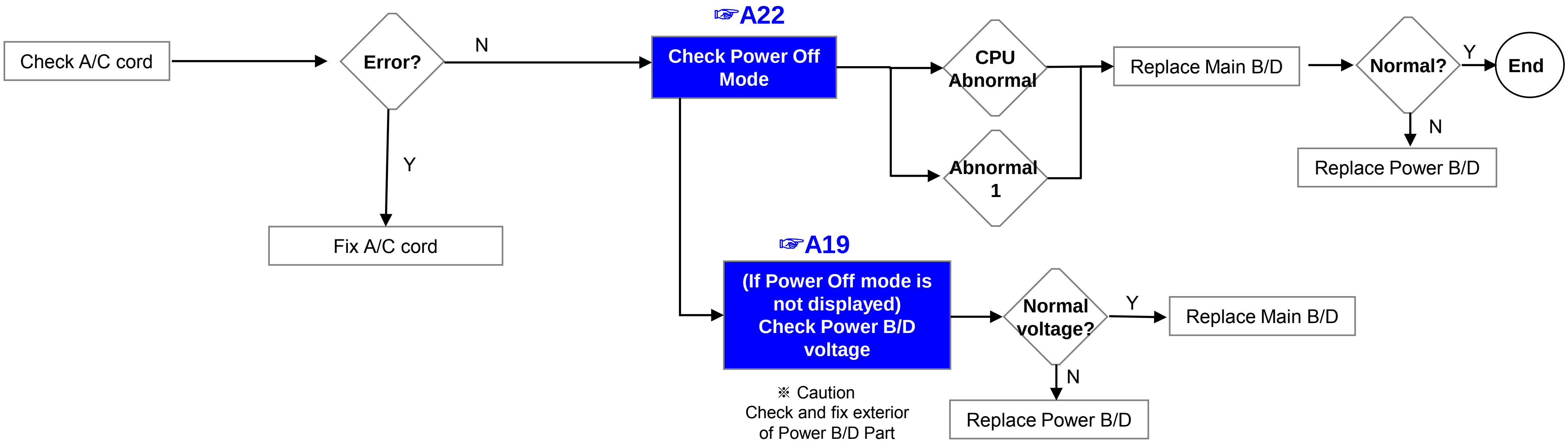
External device screen error-Color error



LCD TV	Error symptom	B. Power error	Established date	2014.01.20	
		No power	Revised date		6/13



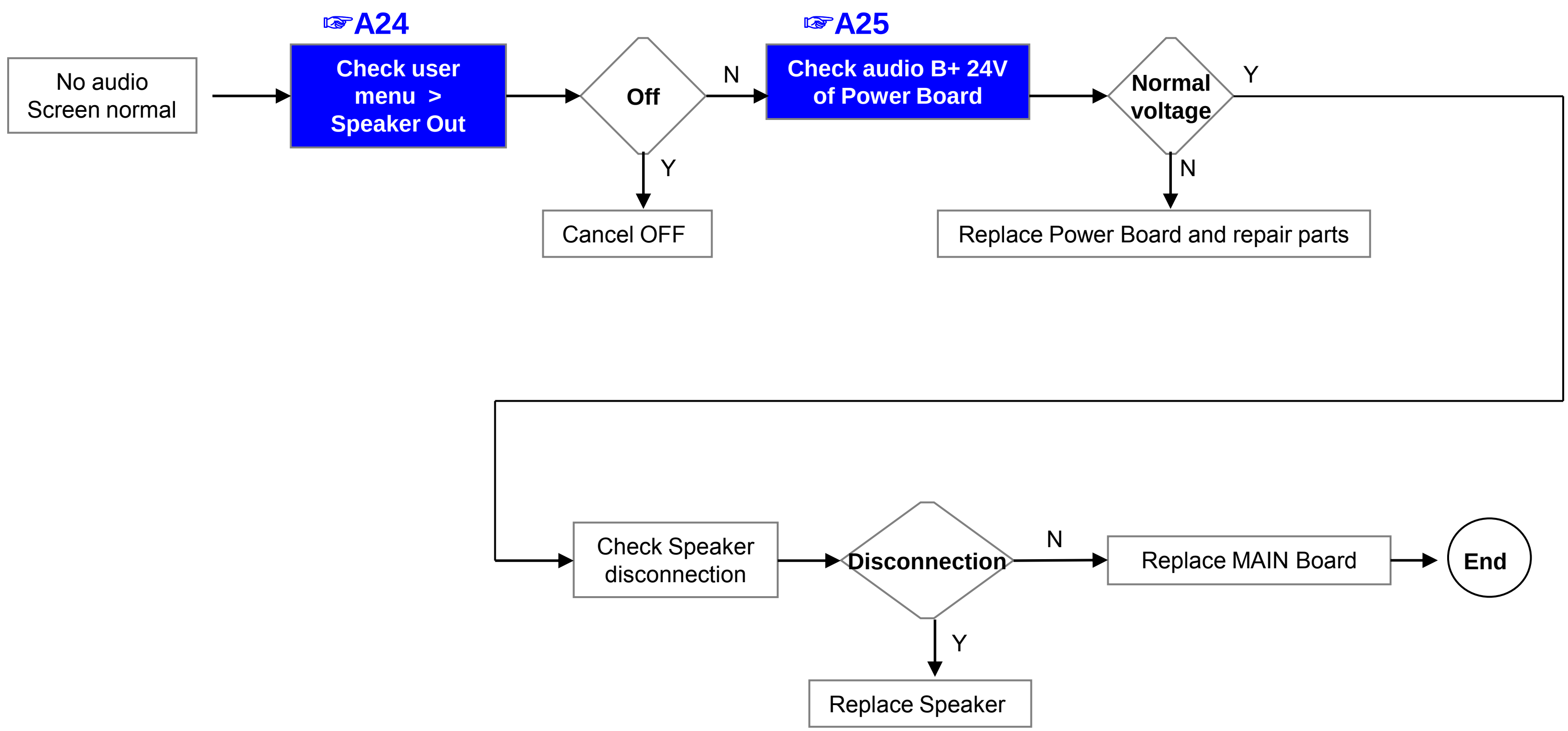
LCD TV	Error symptom	B. Power error	Established date	2014.01.20	
		Off when on, off while viewing, power auto on/off	Revised date		7/13



*** Please refer to the all cases which can be displayed on power off mode.**

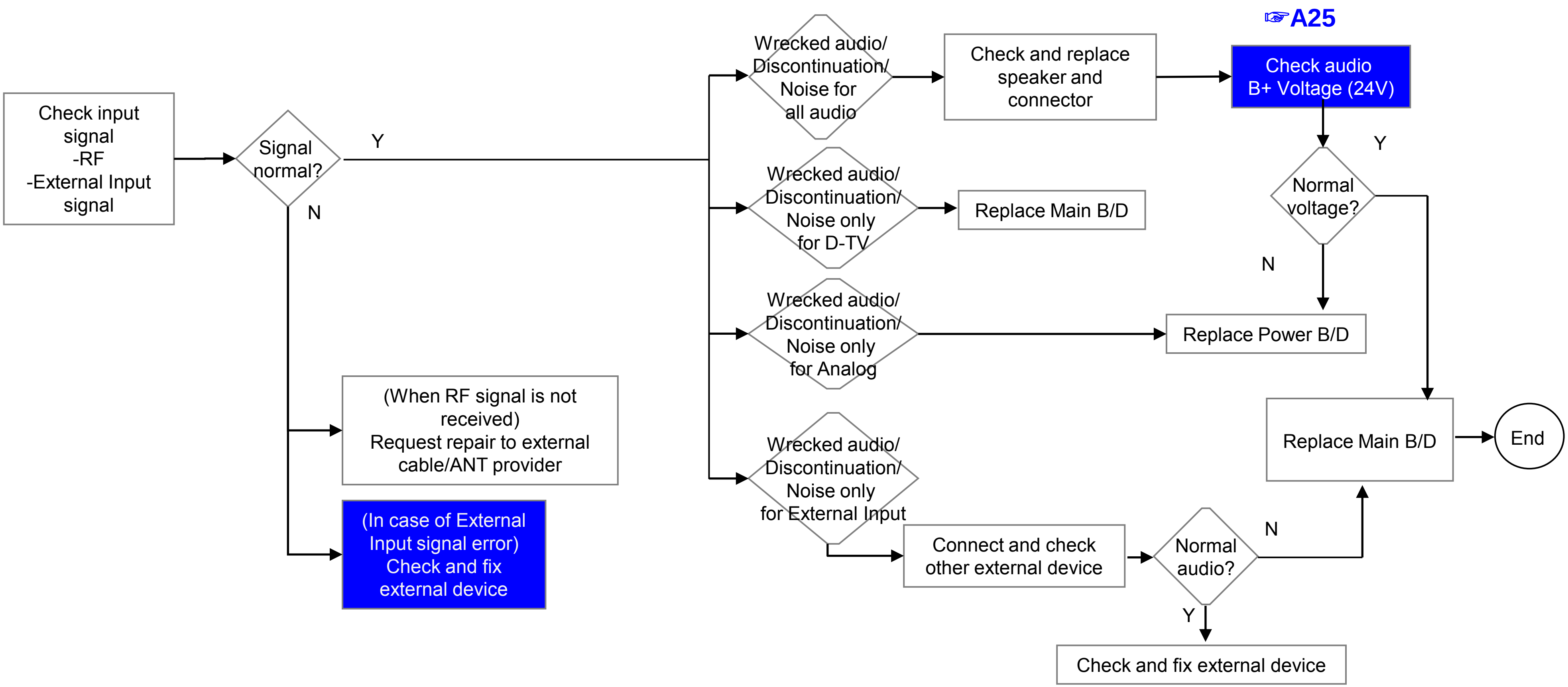
Status	Power off List	Explanation
Normal	"POWEROFF_REMOTEKEY"	Power off by REMOTE CONTROL
	"POWEROFF_OFFTIMER"	Power off by OFF TIMER
	"POWEROFF_SLEEPTIMER"	Power off by SLEEP TIMER
	"POWEROFF_INSTOP"	Power off by INSTOP KEY
	"POWEROFF_AUTOOFF"	Power off by AUTO OFF
	"POWEROFF_ONTIMER"	Power off by ON TIMER
	"POWEROFF_RS232C"	Power off by RS232C
	"POWEROFF_RESREC"	Power off by Reservated Record
	"POWEROFF_RECEND"	Power off by End of Recording
	"POWEROFF_SWDOWN"	Power off by S/W Download
	"POWEROFF_UNKNOWN"	Power off by unknown status except listed case
Abnormal	"POWEROFF_ABNORMAL1"	Power off by abnormal status except CPU trouble
	"POWEROFF_CPUABNORMAL"	Power off by CPU Abnormal

LCD TV	Error symptom	C. Audio error	Established date	2014.01.20	
		No audio/ Normal video	Revised date		8/13

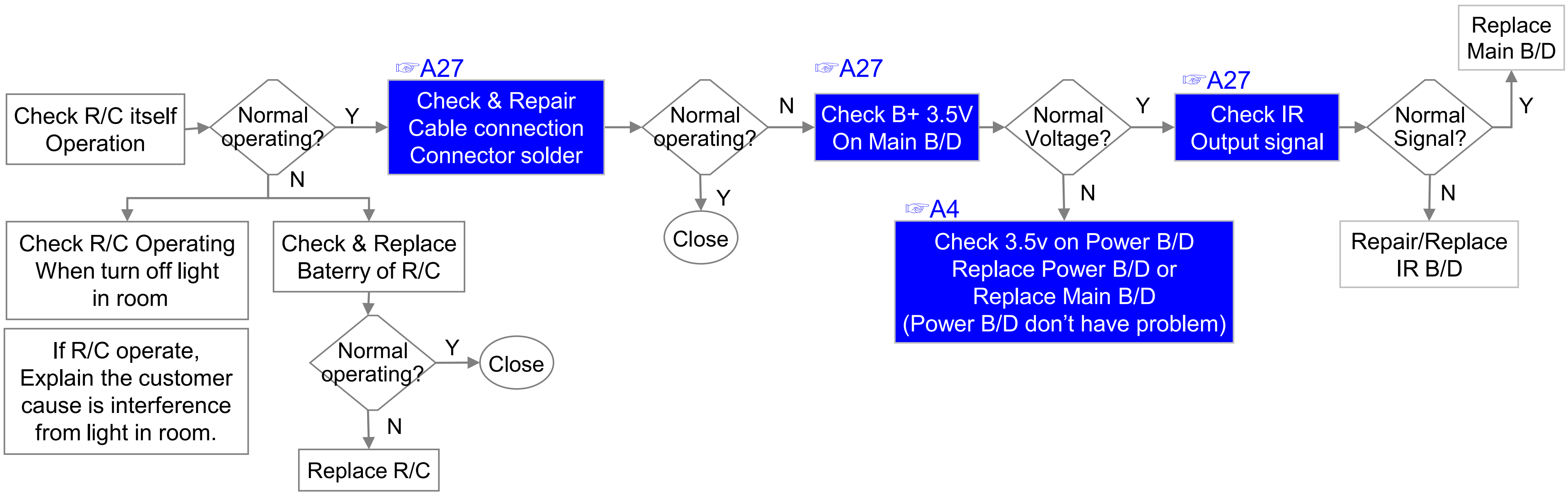


LCD TV	Error symptom	C. Audio error	Established date	2014.01.20	
		Wrecked audio/ discontinuation/noise	Revised date		9/13

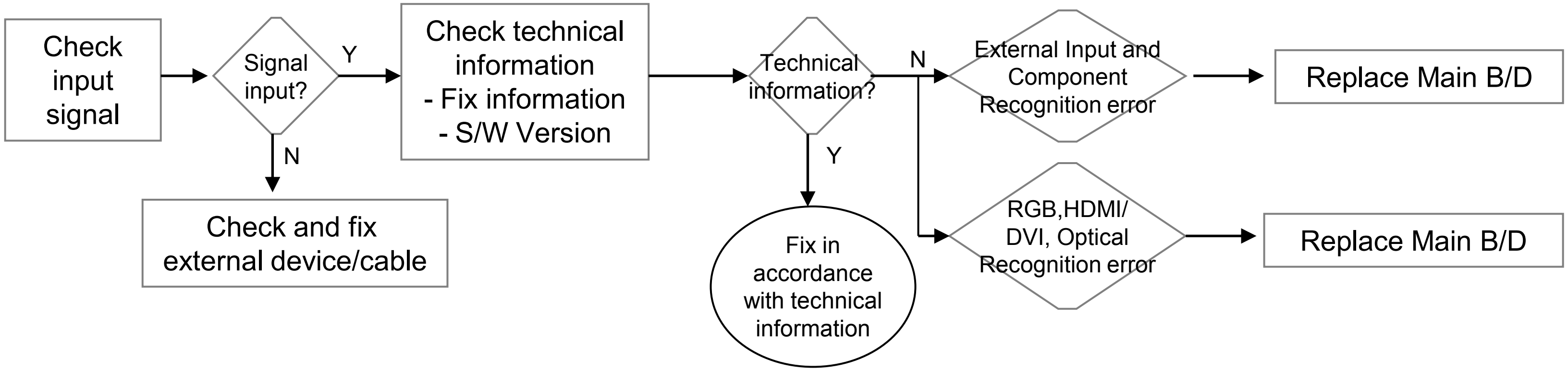
→ **abnormal audio/discontinuation/noise is same after "Check input signal" compared to No audio**



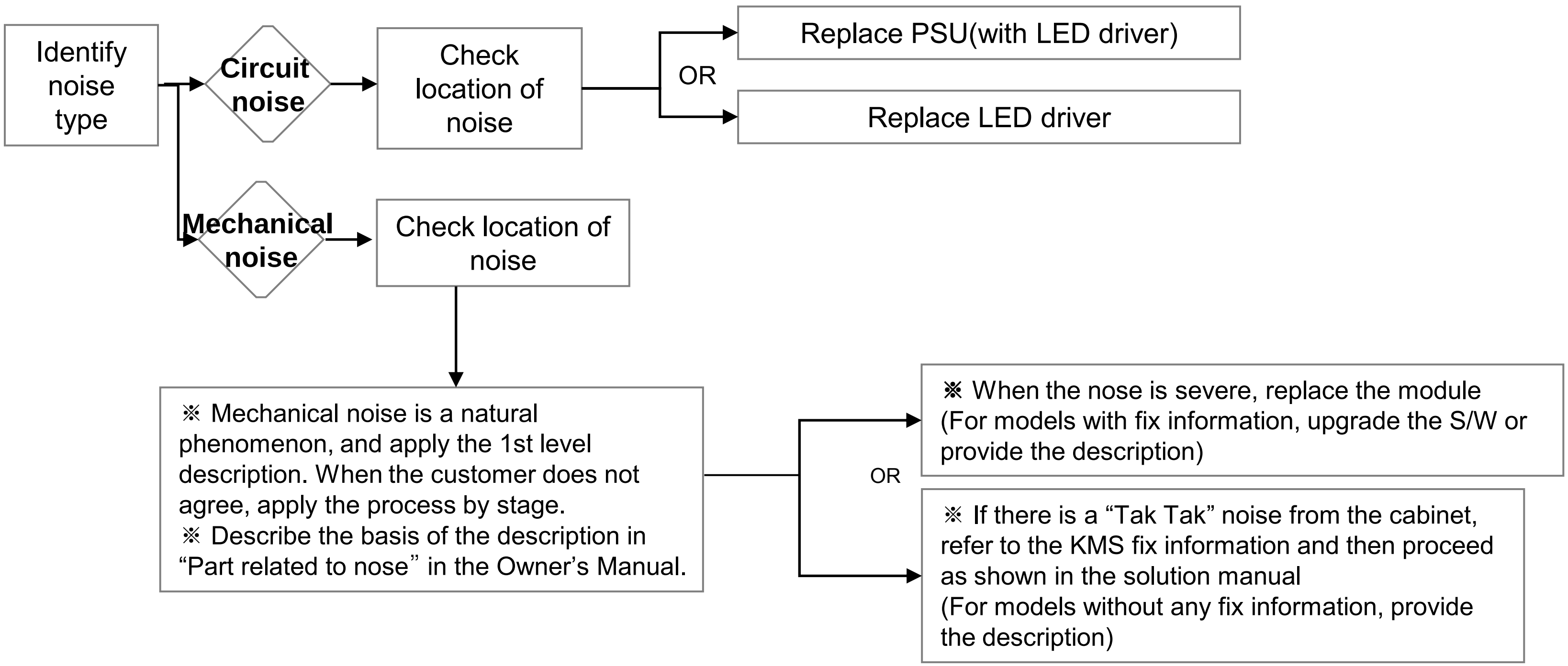
LCD TV	Error symptom	D. General Function Problem	Established date	2014.01.20	
		Remote control & Local switch checking	Revised date		10/13



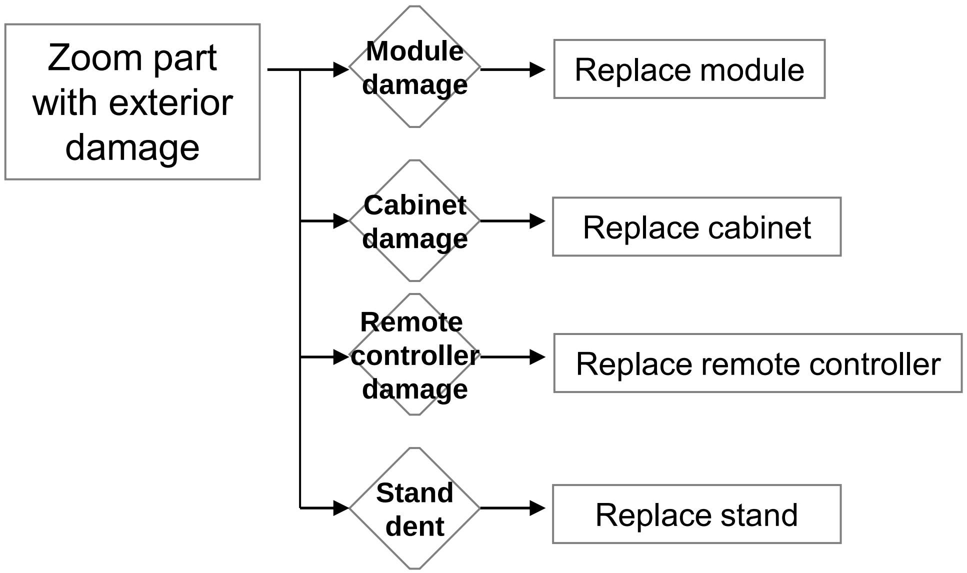
LCD TV	Error symptom	D. Function error	Established date	2014.01.20	
		External device recognition error	Revised date		11/13



LCD TV	Error symptom	E. Noise	Established date	2014.01.20	
		Circuit noise, mechanical noise	Revised date		12/13



LCD TV	Error symptom	F. Exterior defect	Established date	2014.01.20	
		Exterior defect	Revised date		13/13



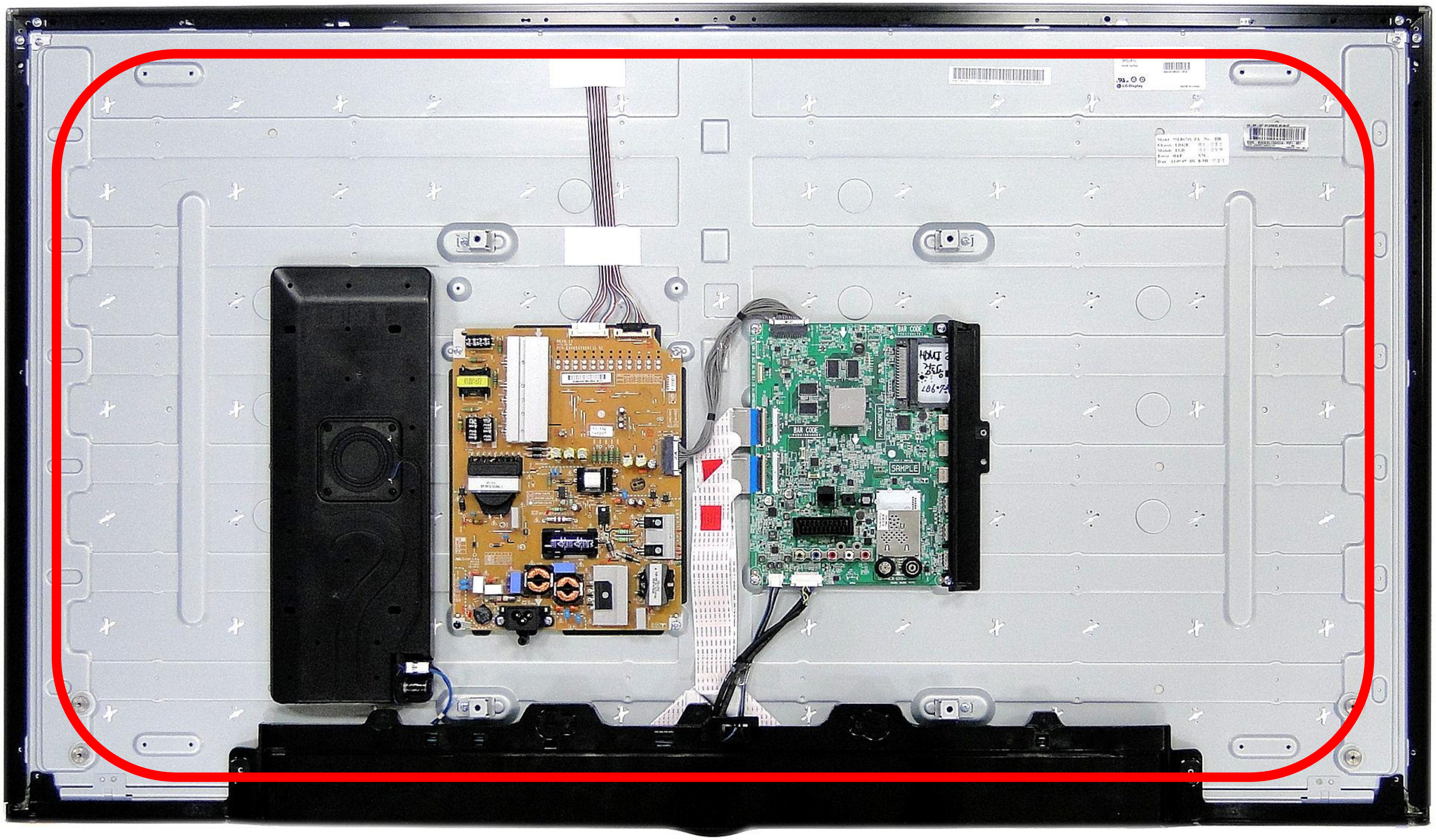
Contents of LCD TV Standard Repair Process Detail Technical Manual

Contents of LCD TV Standard Repair Process Detail Technical Manual

Continued from previous page

Standard Repair Process Detail Technical Manual

LCD TV	Error symptom	A. Video error_No video/Normal audio	Established date	2014. 01 .20	
	Content	Check LCD back light with naked eye	Revised date		A1



After turning on the power and disassembling the case, check with the naked eye, whether you can see light from module holes.

A1

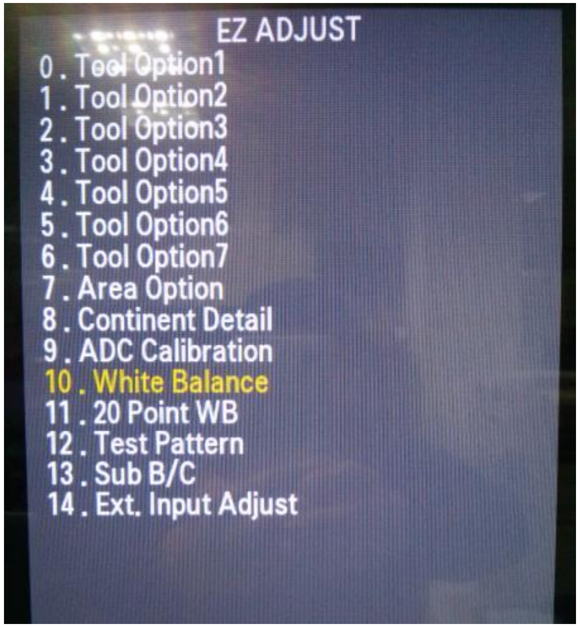
LCD TV	Error symptom	A. Video error_No video/Normal audio	Established date	2014. 01 .20	
	Content	LED driver B+ 24V measuring method	Revised date		A2

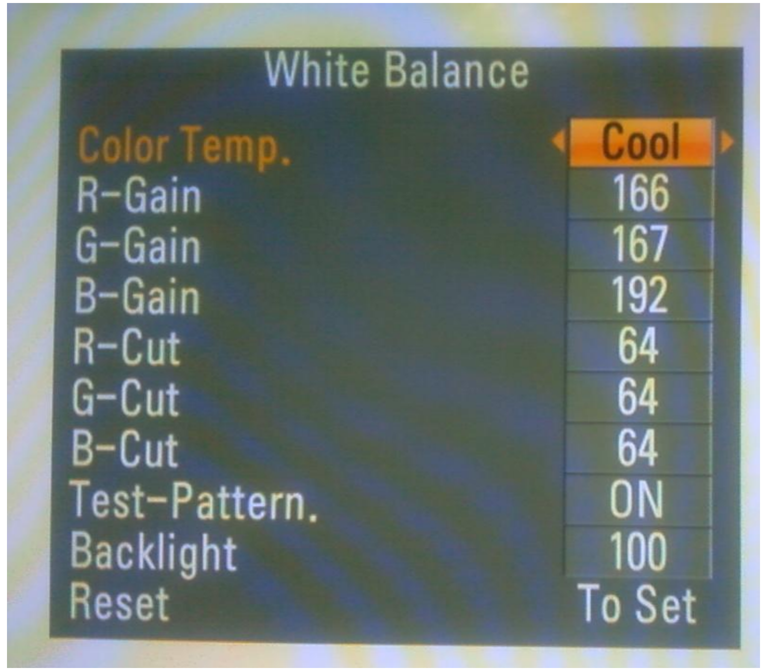
Check the DC 24V

24 Pin	
9, 10, 16	24V

LCD TV	Error symptom	A. Video error_No video/Normal audio	Established date	2014. 01 .20	
	Content	Check White Balance value	Revised date		A3

<ALL MODELS>





Entry method

1. Press the ADJ button on the remote controller for adjustment.

2. Enter into White Balance of item 10.

3. After recording the R, G, B (GAIN, Cut) value of Color Temp (Cool/Medium/Warm), re-enter the value after replacing the MAIN BOARD.

Check the 12V, 3.5V.

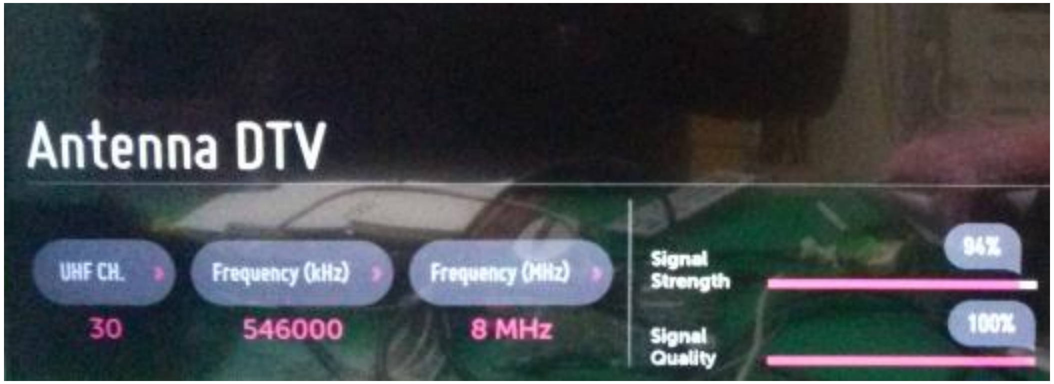
24 Pin (Power Board ↔ Main Board)			
SMAW200-H24S5			
1	Power on	2	Inverter On
3	3.5V	4	PWM#1
5	3.5V	6	3.5V
7	GND	8	PWM#2
9	24V	10	24V
11	GND	12	GND
13	12V	14	12V
15	12V	16	24V
17	GND	18	GND
19	GND	20	GND
21	GND	22	L/DIM0_VS
23	L/DIM0_MOSI	24	L/DIM0_SCLK

Standard Repair Process Detail Technical Manual

LCD TV	Error symptom	A. Video error_Video error, video lag/stop	Established date	2014. 01 .20	
	Content	TUNER input signal strength checking method	Revised date		A6

<ALL MODELS>

Settings →Quick → Programmes → Programme Tuning

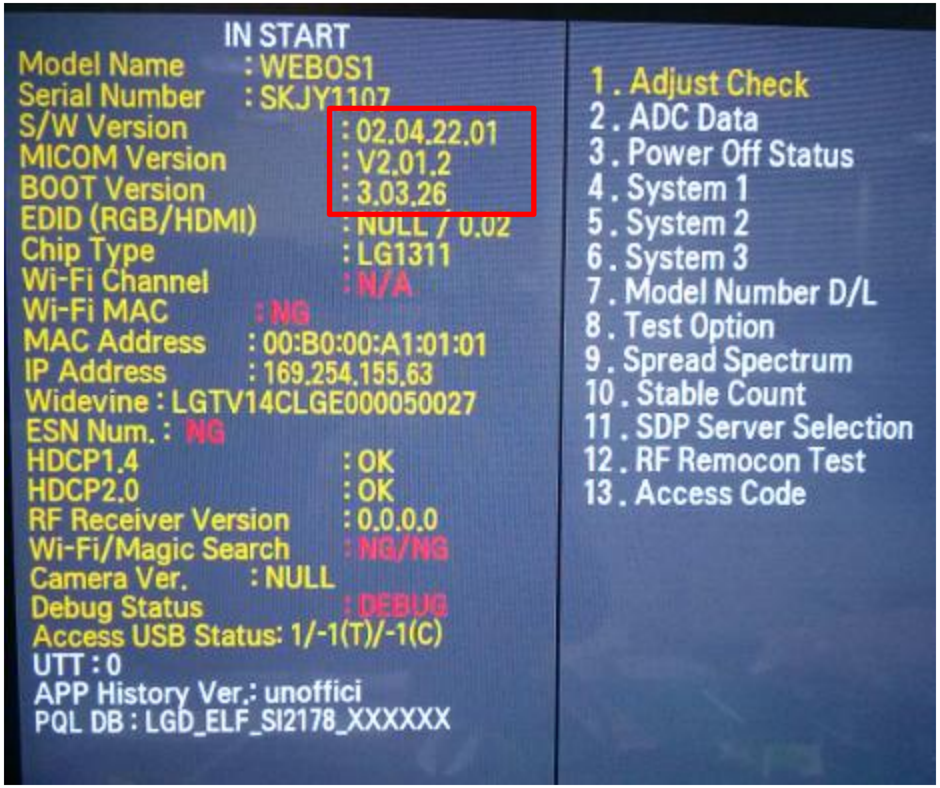


When the signal is strong, use the attenuator (-10dB, -15dB, -20dB etc.)

<ALL MODELS>

1. Checking method for remote controller for adjustment

Version



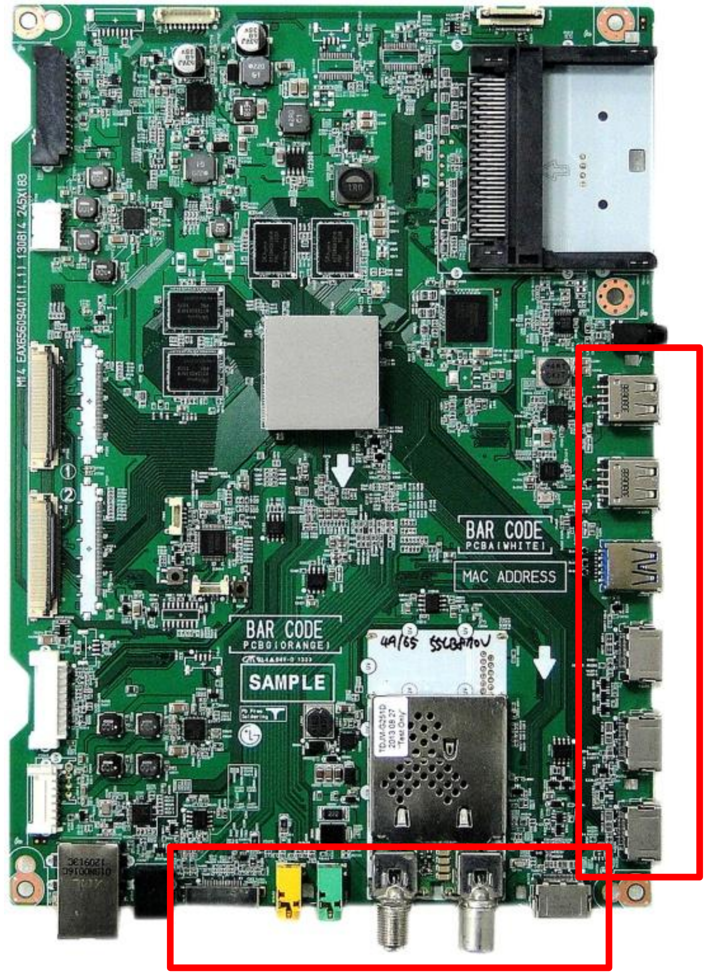
Press the IN-START with the remote controller for adjustment

Standard Repair Process Detail Technical Manual

LCD TV	Error symptom	A. Video error _Vertical/Horizontal bar, residual image, light spot	Established date	2014. 01 .20	
	Content	LCD TV connection diagram	Revised date		A8

[LD42B models]

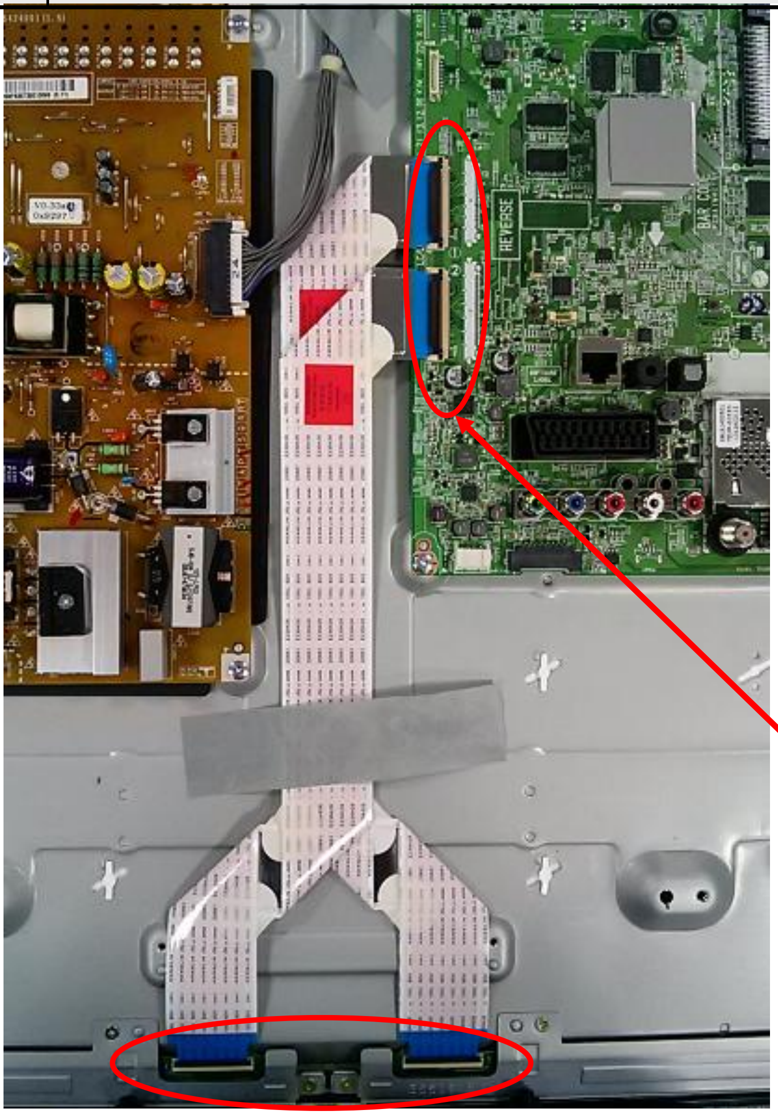
[LD42A models]



As the part connecting to the external input, check the screen condition by signal

Standard Repair Process Detail Technical Manual

LCD TV	Error symptom	A. Video error_Color error	Established date	2011. 12 .14	
	Content	Check Link Cable (EPI) reconnection condition	Revised date		A10

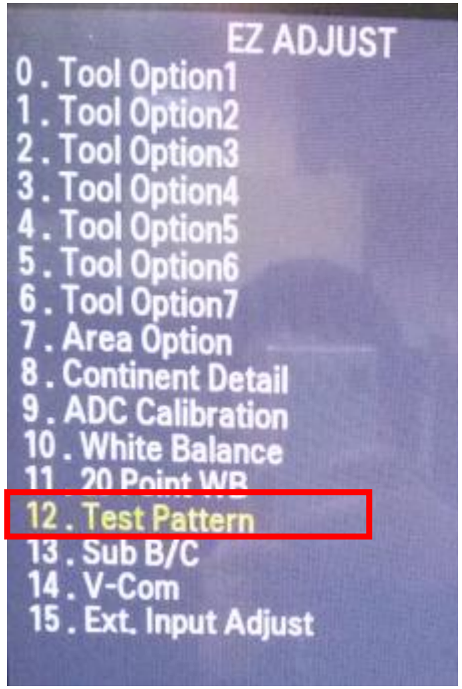


Check the contact condition of the Link Cable, especially dust or mis insertion.

A10

Standard Repair Process Detail Technical Manual

LCD TV	Error symptom	A. Video error_Color error	Established date	2014. 01 .20	
	Content	Adjustment Test pattern - ADJ Key	Revised date		A12

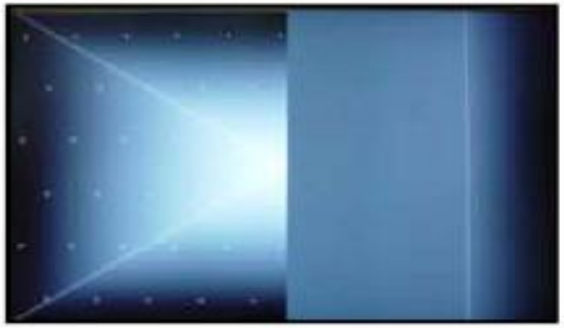


You can view 6 types of patterns using the ADJ Key

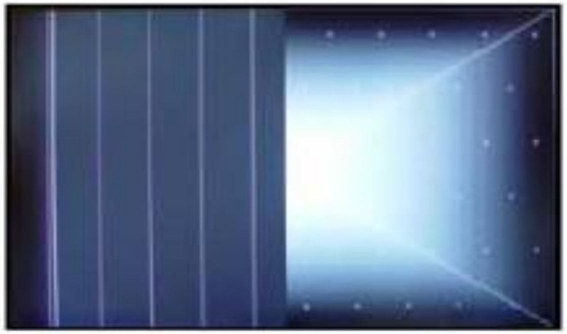
Checking item : 1. Defective pixel 2. Residual image 3. MODULE error (ADD-BAR,SCAN BAR..)
4.Video error (Classification of MODULE or Main-B/D!)

Appendix : Exchange EPI Cable or Main B/D (1)

Solder defect, CNT Broken

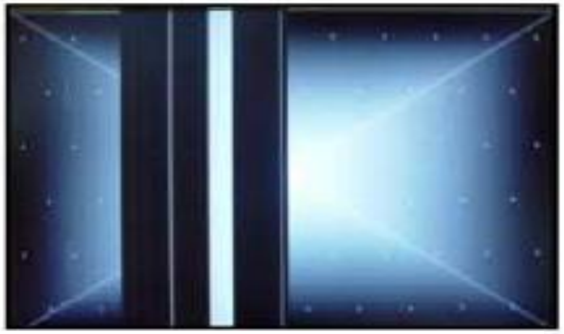


Solder defect, CNT Broken



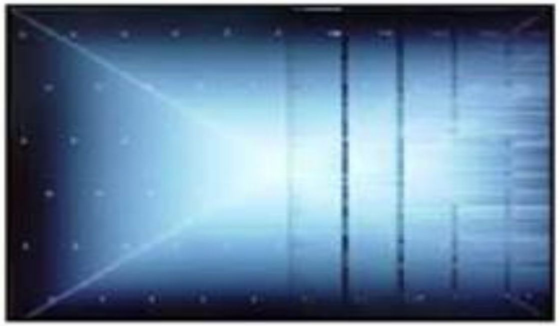
Solder defect, CNT Broken

Solder defect, CNT Broken



Solder defect, CNT Broken

Abnormal Power Section

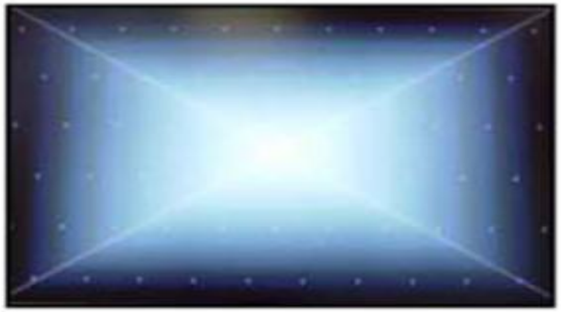


Solder defect, Short/Crack

Abnormal Power Section

Solder defect, Short/Crack

Appendix : Exchange EPI Cable or Main B/D (2)



Abnormal Power Section

Abnormal Power Section

Solder defect, Short/Crack

Solder defect, Short/Crack

Fuse Open, Abnormal power section

Abnormal Display

GRADATION

Noise

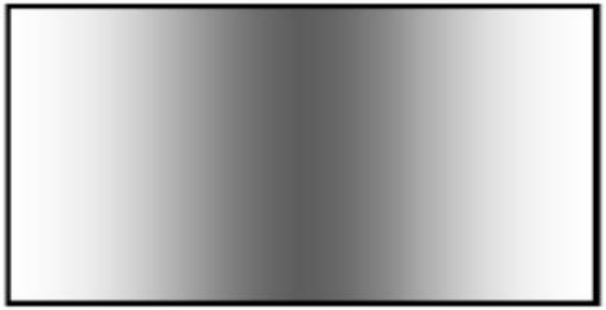
GRADATION

Appendix : Exchange Power Board

No Light

Dim Light

Dim Light



Dim Light

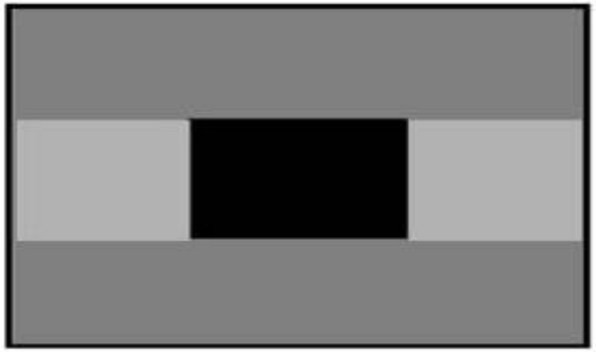
No picture/Sound Ok

Appendix : Exchange the Module (1)

Panel Mura, Light leakage

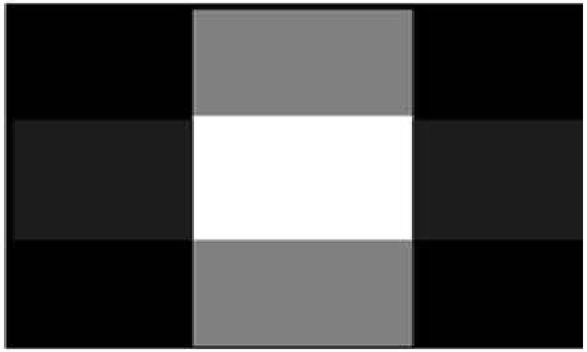
Panel Mura, Light leakage

Press damage



Crosstalk

Press damage



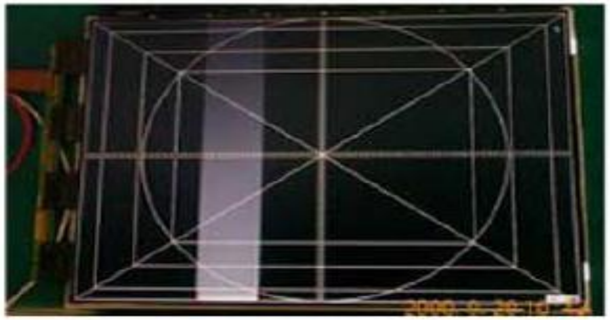
Crosstalk

Press damage

Un-repairable Cases

In this case please exchange the module.

Appendix : Exchange the Module (2)



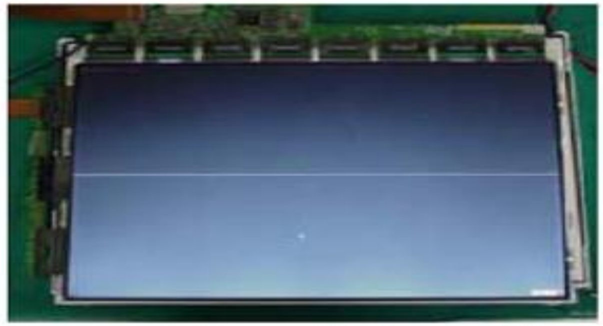
Vertical Block
Source TAB IC Defect

Vertical Line
Source TAB IC Defect

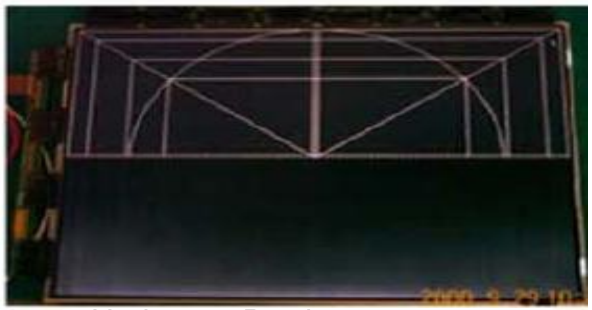
Vertical Block
Source TAB IC Defect

Horizontal Block
Gate TAB IC Defect

Horizontal Block
Gate TAB IC Defect



Horizontal line
Gate TAB IC Defect



Horizontal Block
Gate TAB IC Defect

Un-repairable Cases

In this case please exchange the module.

Standard Repair Process Detail Technical Manual

LCD TV	Error symptom	B. Power error _No power	Established date	2014. 01 .20	
	Content	Check front display LED	Revised date		A17

Front LED control :
Menu → General → Standby Light → ON/ Off

ST-BY condition: Red
Power ON condition: Turn Off

Check the 3.5V (3, 5, 6 Pin)

24 Pin (Power Board ↔ Main Board)			
SMAW200-H24S5			
1	Power on	2	Inverter On
3	3.5V	4	PWM#1
5	3.5V	6	3.5V
7	GND	8	PWM#2
9	24V	10	24V
11	GND	12	GND
13	12V	14	12V
15	12V	16	24V
17	GND	18	GND
19	GND	20	GND
21	GND	22	L/DIM0_VS
23	L/DIM0_MOSI	24	L/DIM0_SCLK

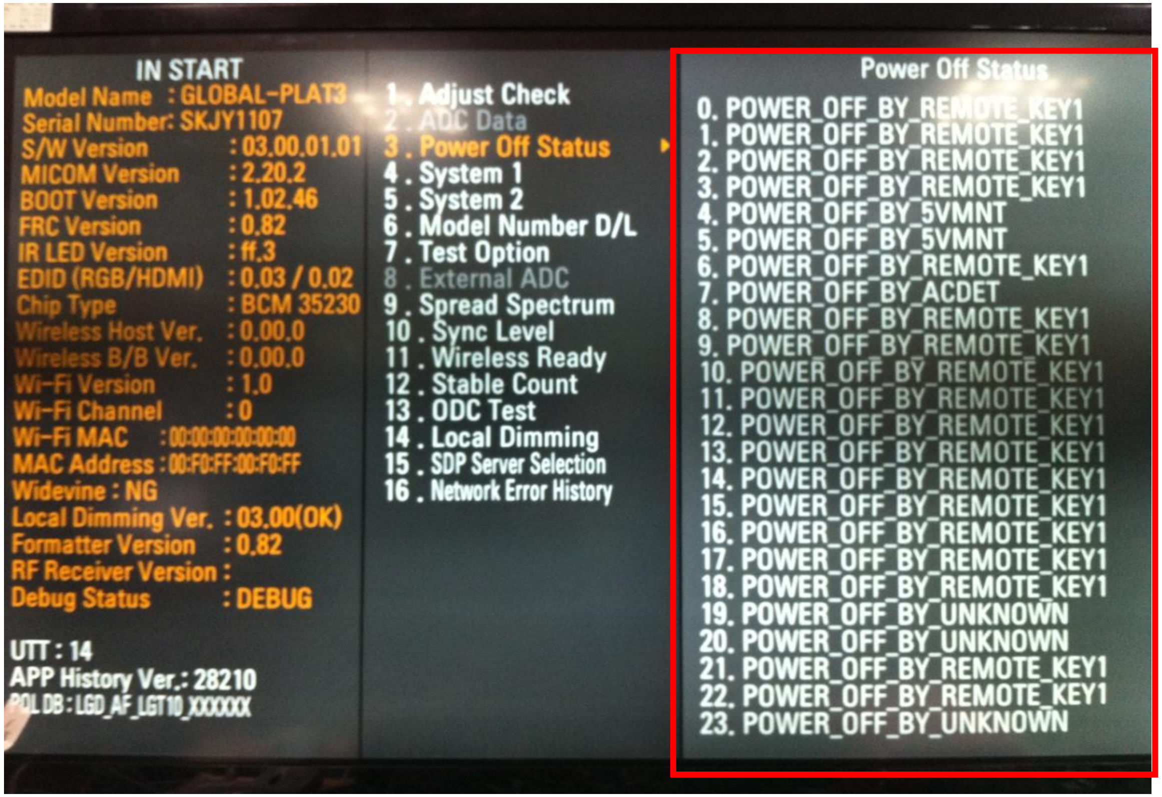
Check “power on” pin is high

24 Pin (Power Board ↔ Main Board)			
SMAW200-H24S5			
1	Power on	2	Inverter On
3	3.5V	4	PWM#1
5	3.5V	6	3.5V
7	GND	8	PWM#2
9	24V	10	24V
11	GND	12	GND
13	12V	14	12V
15	12V	16	24V
17	GND	18	GND
19	GND	20	GND
21	GND	22	L/DIM0_VS
23	L/DIM0_MOSI	24	L/DIM0_SCLK

Standard Repair Process Detail Technical Manual

LCD TV	Error symptom	B. Power error _Off when on, off whiling viewing	Established date	2014. 01 .20	
	Content	POWER OFF MODE checking method	Revised date		A22

<ALL MODELS>



Entry method

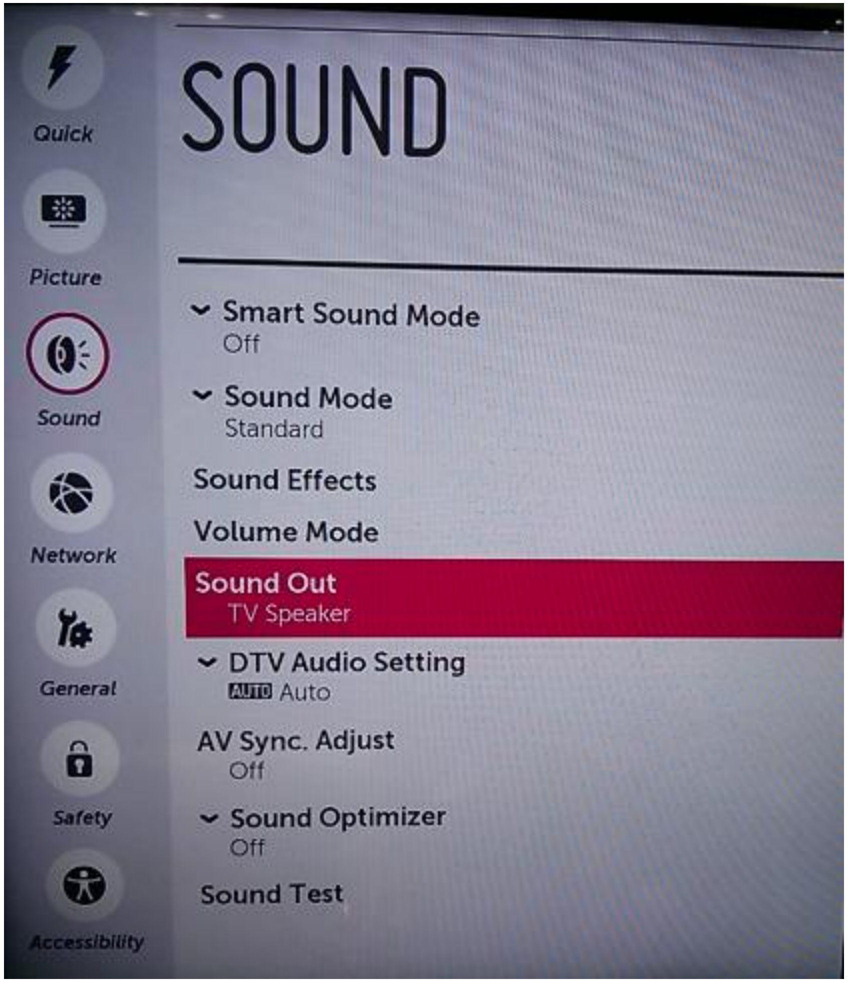
1. Press the IN-START button of the remote controller for adjustment

2. Check the entry into adjustment item 3

Standard Repair Process Detail Technical Manual

LCD TV	Error symptom	C. Audio error_No audio/Normal video	Established date	2014. 01 .20	
	Content	Checking method in menu when there is no audio	Revised date		A24

<ALL MODELS>



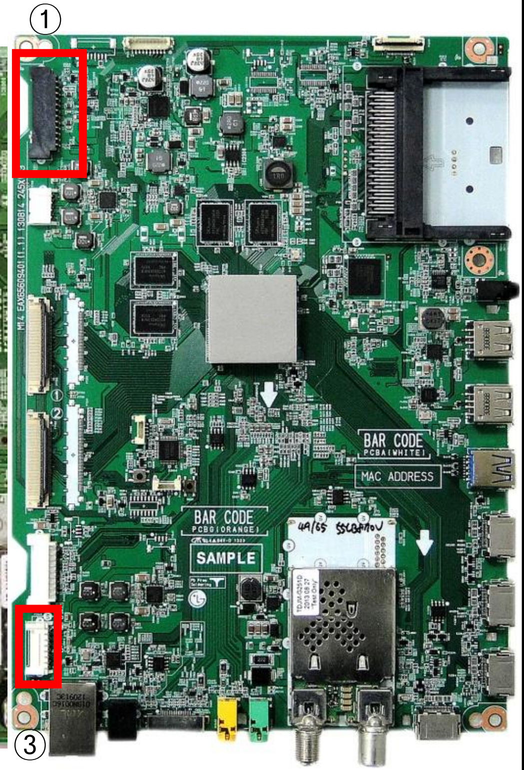
Checking method

1. Press the Setting button on the remote controller
2. Select the Sound function of the Menu
3. Select the Sound Out
4. Select TV Speaker

24 Pin (Power Board ↔ Main Board)			
SMAW200-H24S5			
1	Power on	2	Inverter On
3	3.5V	4	PWM#1
5	3.5V	6	3.5V
7	GND	8	PWM#2
9	24V	10	24V
11	GND	12	GND
13	12V	14	12V
15	12V	16	24V
17	GND	18	GND
19	GND	20	GND
21	GND	22	L/DIM0_VS
23	L/DIM0_MOSI	24	L/DIM0_SCLK

[LD42B models]

[LD42A models]



Checking order when there is no audio

① Check the contact condition of or 24V connector of Main Board

② Measure the 24V input voltage supplied from Power Board
(If there is no input voltage, remove and check the connector)

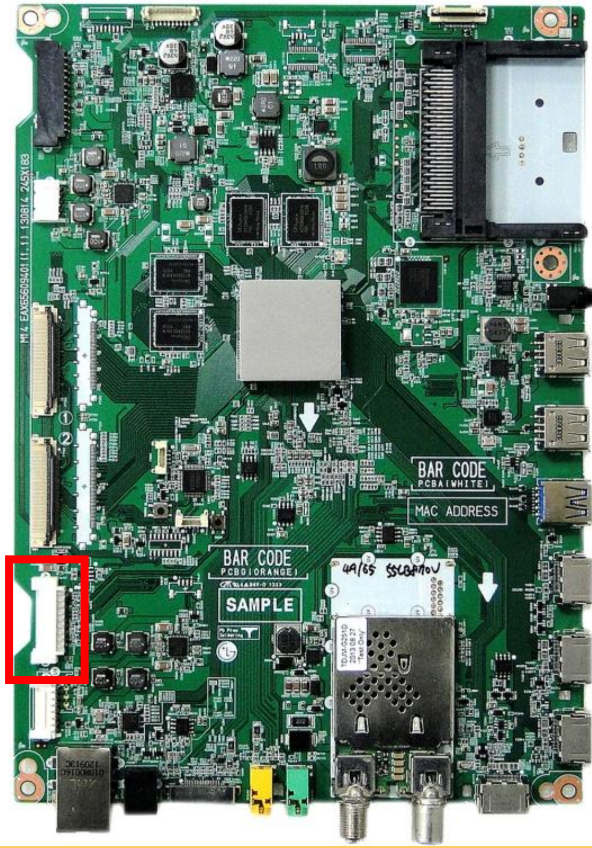
③ Connect the tester RX1 to the speaker terminal and if you hear the Chik Chik sound when you touch the GND and output terminal, the speaker is normal.

Standard Repair Process Detail Technical Manual

LCD TV	Error symptom	D. Function error_ No response in remote controller, key error	Established date	2014. 01 .20	
	Content	Remote controller operation checking method	Revised date		A27

[LD42B models]

[LD42A models]



①

P4000	
1	GND
2	+3.5V_WOL
3	BT_RESET
4	WIFI_DM
5	NC
6	WIFI_DP
7	WIFI_POWER_ON
8	GND
9	EYE_SDA
10	GND
11	EYE_SCL
12	KEY1
13	GND
14	KEY2
③ 15	IR
② 16	+3.5V_ST
17	LED_R
18	GND

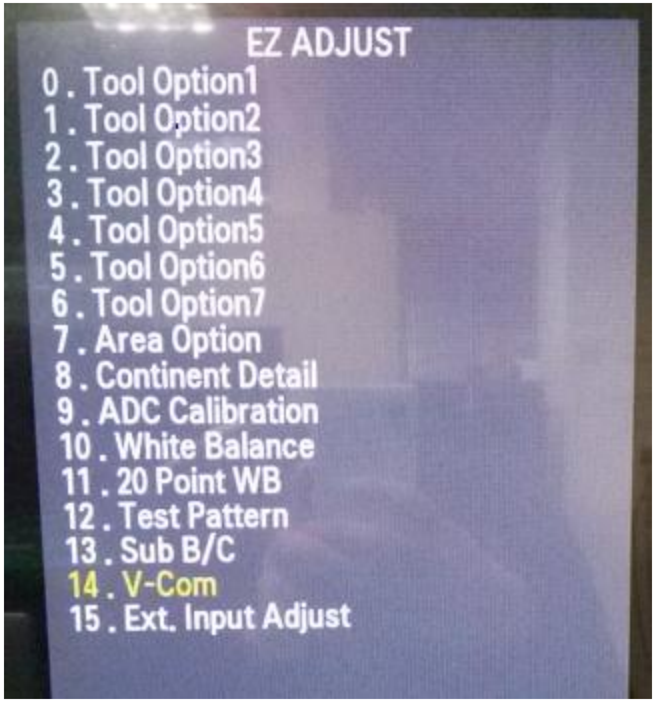
Checking order

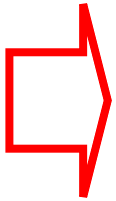
1. Check IR cable condition between IR & Main board
2. Check the st-by 3.5V on the terminal 16.

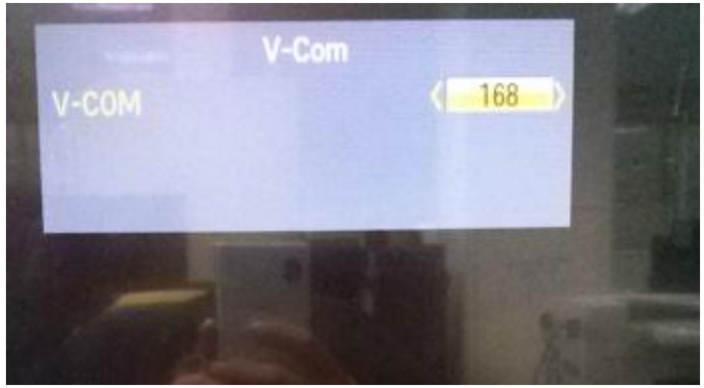
4. When checking the Pre-Amp when the power is in ON condition, it is normal when the Analog Tester needle moves slowly, and defective when it does not move at all.

Standard Repair Process Detail Technical Manual

LCD TV	Error symptom	Display has error especially color	Established date	2014. 01 .20	
	Content	V-Com checking and adjust method	Revised date		A28







Entry method

1. Press the ADJ button on the remote controller for adjustment.

2. Enter into V-Com of item 14.

3. Check and adjust V-Com value.